



AMERICAN FOX AND FUR FARMER, VOLUME 7

ANONYMOUS

American Fox And Fur Farmer, Volume 7

Anonymous

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John Philip Sousa: Biography

John Philip Sousa was born in 1854 in Duxbury, Massachusetts. He was a composer, conductor, and bandleader. He is best known for his marches, which were popular throughout the world. He was also a skilled pianist and violinist. Sousa's music was characterized by its rhythmic drive and melodic appeal. He was a prolific composer, writing over 300 marches and many other pieces of music. He was also a successful conductor, leading his own band, the Sousa Band, for many years. Sousa's music was a major part of the American musical landscape in the late 19th and early 20th centuries. He was a true American hero, whose music and leadership inspired generations of Americans.

Sousa's music was a reflection of the American spirit. It was full of energy and optimism, and it was a source of pride for Americans everywhere. His marches were played at many important events, including the opening of the Panama Canal and the dedication of the Statue of Liberty. Sousa's music was also a source of comfort and inspiration during difficult times. He was a true American hero, whose music and leadership inspired generations of Americans.

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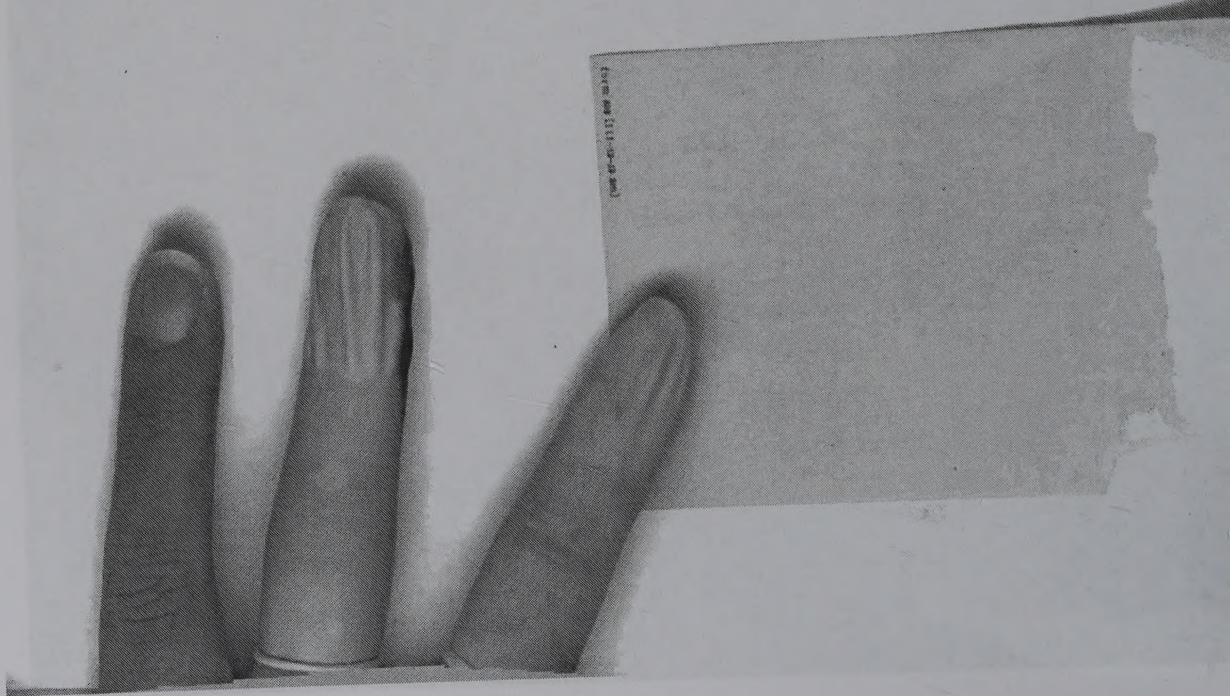
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Vol. I

JULY, 1921

No. 1

AMERICAN FOX and FUR FARMER

AN AMERICAN
PUBLICATION
DEVOTED EX-
CLUSIVELY TO



THE SILVER
BLACK FOX
INDUSTRY &
FUR FARMING



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American Fox and Fur Farmer

Vol. I

JULY, 1921

No. 1

PUBLISHED MONTHLY, 406 ARCADE BUILDING, UTICA, N. Y.—PHONE 1778-W
An American Publication Devoted Exclusively to the Silver Black Fox Industry and Fur Farming

WARD B. EDWARDS, *Editor*

PUBLISHED BY "AMERICAN FOX AND FUR FARMER"

OUR REASON FOR EXISTENCE

This is the first issue of the "AMERICAN FOX AND FUR FARMER." Consistent to a widespread demand for an American publication for the American Fox Breeder, this publication was born. It is only fair to our readers to state at the outset that the policy of this publication will be an American publication for the American breeder and American market. No advertising from foreign breeders will be accepted. Those who are responsible for the creation of this publication believe that the time has arrived when the fox industry in this country has reached a point where it can and will support a purely American publication devoted to its interests.

Our faith is firmly fixed in the American breeder. This publication will play no favorites. Every advertiser will get a square deal as will also every reader so far as it lies in our power to give it.

We believe that fur farming in the United States is just in its initial stages and that now is the time to put it on a firm business basis by the same treatment that other lines of industry are given. We expect to stand four square to the wind—let the chips fly where they will.

This publication favors a tariff on foxes imported into this country. It favors a tariff on silver black fox pelts imported into this country, and it favors and enthusiastically endorses the quarantine regulations on foxes imported into this country, recently put into effect by the United States Department of Agriculture. It hereby pledges itself in opposition to the sale of culls and inferior foxes at prices that will purchase high grade foxes. It promises to support in every way the United States Department of Agriculture in its consistent effort to place the raising of foxes and other fur-bearing animals in captivity on a firm and lasting basis. In our efforts to do these things we ask the hearty support of every American breeder. We pledge our loyalty to the American breeder. Our columns will not be used to punish anyone, nor will they be used to cater to any one particular individual or group of individuals. One for all, and all for one.

With a firm belief that our efforts, combined with the united efforts of the fur farmers of America, will put this industry where it belongs, we present our first issue. We make no apology for it. It speaks for itself.

OUR POLICY REGARDING ADVERTISING

The publishers of the American Fox and Fur Farmer have already refused and will continue to refuse advertising

from foreign breeders of foxes and other fur bearing animals. This policy was definitely determined before the publication was born and will be strictly adhered to. We have no quarrel with any foreign breeder but we firmly believe that the fox industry in America has reached a stage where the American Breeder can and will loyally support a publication devoted to and truly representative of its interests. We call upon the American breeder of foxes and all fur bearing animals to show this loyalty to an American publication by at once subscribing to this publication—and by advertising in its columns. We express our keen appreciation of the hundreds of subscriptions and many advertisements received in advance of the publication of our first issue. We need every breeder in America with us—Let's go—Don't wait—Do it today.

AN AMERICAN STANDARD

Those responsible for the publication of the "AMERICAN FOX AND FUR FARMER" desire to make it perfectly plain to their readers that they are in favor of an American Standard for foxes; a standard which can be approved by both the American and the National Fox Breeders Association, and one which is in thorough accord with the Standard set forth by the United States Department of Agriculture and which can have the seal of approval of that Governmental agency placed upon it. We are firmly of the opinion that the fox breeders of America of today are fully qualified, with the assistance of the experts of the United States Department of Agriculture, to arrange an American Standard which will meet the approval of all concerned. We pledge ourselves to assist those interested in reaching this goal.

INVESTIGATE YOUR MAN

There are doubtless hundreds of the readers of the first issue of this publication who are more or less interested in fur farming and who are seriously thinking of purchasing foxes in the near future.

May we enter just a word of warning here to those who are intending to purchase, and urge them to be careful and see that the man, or the corporation, from whom they purchase are not only reliable and responsible, but are also truthful regarding the foxes they have for sale? Beware of the salesman who advises you that his foxes are the best in the world and that they cannot be beaten as to quality.

etc. First investigate the financial responsibility of the individual, or the firm, or corporation, from whom you are intending to purchase. Investigate also the quality of the original stock which they purchased. Investigate the ranch conditions, the feeding, and the general care of the foxes on their ranch.

"THE AMERICAN FOX AND FUR FARMER"

recommends to its readers the fox breeders who are advertising in its columns, and we pledge our readers that we will not knowingly accept the advertisement of any fox or fur farmer who is not acting on the square. We repeat, before purchasing foxes or any fur-bearing animals, investigate your man.

REPORTS FROM BREEDERS

Reports received at the office of the "AMERICAN FOX AND FUR FARMER" from breeders of silver black foxes throughout the United States indicate a splendid production of pups. We have had very encouraging letters from a large number of breeders who know exactly at this time how many pups they have produced, and the average in most cases is very high. We desire our readers to know that reports from their ranches will be received and printed with pleasure. The past season has been exceptionally favorable, from a standpoint of weather conditions, for the raising of large litters, and the reports received thus far indicate that some exceptionally large litters have been produced.

SILVER FOX PUPS HAVE BEEN SOLD FOR \$1,250 EACH

From "Watertown Standard", Watertown, N. Y.

Ten silver fox pups which have been raised on the E. L. Day ranch in upper Washington street, have been sold and are to be delivered in October to the purchaser. The animals now are from five to six weeks old and the contract price is \$1,200 each, according to a contract which Mr. Day has with a leading silver fox dealer who purchases as many of them as the breeders desire to dispose of.

Besides the pups there are three pairs of breeding foxes at the Day ranch. The younger ones will be several months old when shipped as they are to be sent out during October. This is the most opportune time to transport them although the season is between September and December.

SILVER FOX FARM ATTRACTING MUCH INTEREST

From "The Malone Farmer"

The Hogle Fox Farm at McCollom's is just now a point of much interest in the North Country, for the foxes are having their litters and on the increase in young foxes depends the measure of profit of the enterprise. Young silver black foxes of the same breeding, producing on a Jefferson county farm this year, have been selling at \$2,500 a pair with demand for all that can be supplied. Up to Wednesday last the Hogle Farm had three litters. They expect 15 or more. How many young foxes there are in a litter it is

impossible to tell, as they do not come out of their dens until three weeks old, and the mother foxes are so nervous and suspicious during this time that they cannot be disturbed in the least, lest they kill and eat their young. The first three weeks is, therefore, a very critical time for the young foxes. Even food for the mother fox is placed in the edge of the conduit leading to the den. She comes out just far enough to grab it and return with it to the den. The first litter born on the Hogle Farm came on Easter Sunday and the young foxes will soon show themselves. Their appearance is awaited with great expectancy. When every young fox is worth \$1,250 it means much to the promoters of the enterprise whether a litter contains two or three pups or more. None will be sold until the farm is stocked with 100 animals. The old stock numbers twenty pairs.

YOUNG FOXES WORTH A SMALL FORTUNE, BORN

About Fifty Pups, Expected at Galloups Island, Is Reported

From "Syracuse Herald"

Watertown, April 16.—No reports have come from the Galloups Islands regarding the number of foxes which have been born at the Ontario fox ranch. A group of Watertown men own the ranch, which is located on an island 18 miles out in the lake.

Dr. Ned Dearborn, formerly special investigator for the U. S. Department of Agriculture, is in charge of the ranch and 20 pairs of silver black foxes were put in pens there last fall. At the same time E. L. Day established a fox farm at Sunny Bank farm, upper Washington street, this city, and he possesses parent foxes of the same strain as those at the Galloups Islands.

One litter of foxes has been born at the Day ranch, but the number of young has not been ascertained and will not be known until three weeks from now when the young emerge from the dens. Mr. Day has sold options on these as well as on the unborn fox pups which are expected within a few days. He will receive \$2,500 a pair for them, about 50 fox pups will be born at the Galloups Islands ranch and at the same quotations they will be worth about \$60,000.

SILVER FOX CRUSHED IN BRONX STREET

Believed to Have Reached City from Catskills
From Bronx News

A silver fox ran into Jerome avenue near Central avenue, The Bronx, yesterday and was struck and crushed by an automobile. Mrs. Florence Grimm of 737 Forest avenue, driving along the road, came upon the fox and telephoned to the police.

How the animal came to be in The Bronx the police were unable to determine. A check of the foxes at the Bronx Zoological Gardens showed that none was missing. It is believed the animal may have roamed down from the Catskills.

PARASITES

By W. L. CHANDLER, Ph. D.

Research Associate in Entomology, Michigan Agricultural Experiment Station
East Lansing, Michigan

At the present stage of the fur farming industry the problem of parasites has become one of considerable importance. This is especially the case as regards the Silver Black Fox industry as the following observations indicate:

1—The Silver Black Fox is not only susceptible to the normal parasites of foxes, but has been found to be also susceptible to the common parasites of dogs and cats; and, apparently, has less inherent resistance to the ravages of these parasites than do dogs and cats.

2—Because of the necessity of keeping foxes confined within small inclosures the soil and down-ground houses in

sufficient attention to the possibilities of improving their breeding stock through the control of parasites. However, as the market for breeding animals becomes satisfied and the demand is limited to the higher grade of animals the control of parasites will become imperative.

Damages Caused by Parasites

An attempt to obtain data from various fox farms for the purpose of determining what percentage of the fatalities among foxes may be attributed directly to parasites proved very unsatisfactory. A number of fox farmers stoutly denied having had any losses from any cause whatever. The



PROF. W. L. CHANDLER AT WORK

Michigan State Agricultural College, East Lansing, Michigan

pens one or more years old have become heavily infested with the eggs and cysts of various intestinal parasites, making possible a continuous reinfection of the animals within the pens and assuring an early infection of the offspring.

3—The common practice of using cats as foster-mothers to young fox puppies has resulted in introducing harmful parasites of cats into the fox pens.

4—On many farms watch-dogs have been allowed to roam at will within the guard fence with the result that parasites of dogs have been introduced into the fox pens.

5—At present the demand for any kind of animals for breeding purposes is so great that few breeders have given

reason for this attitude we attribute to the desire of each individual farmer to establish a record for his particular farm. However, from a few of the more progressive ranches reliable information regarding fatalities was obtained; and, survey of these ranches, which survey included post mortem examinations of dead animals and a microscopic study of the feces where fatalities occurred; led to the conclusion that at least a fair percentage of the deaths were caused directly by parasites whatever percentage of the deaths which may be established as being due directly to parasites, it must be borne in mind that parasites do not always, or even as a rule, kill their hosts. Indeed it is only in the very young animals and in rare instances in older animals that para-

sitism results directly in the death of the animal, or even produces symptoms sufficiently pronounced as to arouse the anxiety of the owner. Parasitism more frequently results in the production of inferior animals, in lessening the number and vitality of the offspring and in lowering the resistance of individuals, rendering them susceptible to various common bacterial and albuminal diseases. So that even in the absence of symptoms of parasitism, the work of the parasites is slowly but surely registering results.

Kinds of Parasites and Methods of Distribution

Foxes, like a great many other animals, are hosts of a great many different kinds of parasites. No tissue of their bodies is immune to some kind of parasite or other. However, in North America, the most important parasites of foxes are probably those which inhabit the digestive tract, the lungs and the skin. These may be divided roughly into five groups as follows:

1—External parasites: including lice, fleas, ticks and mites. These live either in the skin of the animal causing scabies, or in the fur causing frequent irritation by sucking blood or by moving about over the skin.

2—Roundworms: including the large, intestinal worms, the hookworms, the whipworms, the lungworms and smaller intestinal worms. These vary in importance according to their location in the animal, and to the toxicity and blood destroying power of their secretions. Their life-history is, as a rule, direct; that is animals become infected through eating the eggs or encysted young forms of these parasites which accidentally get into their food or water.

3—Tapeworms. These are segmented flatworms inhabiting the intestines. Tapeworms usually require another host in which to complete their development. Animals become infected by eating this secondary host, usually fish or external parasites.

4—Flukes. These are unsegmented flatworms inhabiting the liver, the lungs or the digestive tract. Like tapeworms, flukes usually require a secondary host in which to complete their development. Fish are probably the most important secondary hosts of flukes which are likely to be eaten raw by foxes.

5—Protozoa, or one-celled microscopic animal forms such as coccidia, amebas and flagellates. Of these the coccidia are probably the most important. These are spread from one animal to another through the food or water of the latter becoming contaminated by the cysts of the parasites which are passed in the feces of the infected animal.

Detection of Parasites

The only sure method of determining whether an animal is parasitized with either intestinal or lung parasites is by a series of microscopic feces examinations made by one who is trained to recognize the various cysts, motile stages and eggs of parasites.

Treatment

It should be remembered that in order to poison any animal form, even a parasite, a *poison* must be used; and, that with most poisons there is but a small margin of safety between doses effective against internal parasites and those which are sufficient to kill the fox. All proprietary remedies should be looked upon as inefficient. It stands to reason that no firm is going to run any risk of losing the reputation of their product by making doses intended for a fifteen pound animal sufficiently large as to kill a five pound animal. Moreover Silver Black Foxes are too expensive for the layman to experiment with in this respect. It will be far wiser, to run the risk of exposing the fact that you have parasites on your farm, and leave all matters of treatment

in the hands of a veterinarian skilled in the treatment of small animals.

Prevention

The first important step toward preventing the spread of parasites is to maintain strict sanitation within the pens and about the farm in general. The feces of animals suspected of being parasitized with intestinal parasites should be picked up daily and burned. If cats are to be used as foster-mothers obtain cats which are known to be free from intestinal parasites, then keep them free by keeping them confined in a clean sanitary place. Keep both cats and foxes free from external parasites. Remember that the most important source of supply of intestinal parasites is dogs and cats; never permit these animals within the guard fence.

ORDERS FOX INSPECTION

Department of Agriculture Moves to Prevent Contagious Diseases

From "New York Times," June 12, 1921

To protect owners of fox farms, the Secretary of Agriculture has ruled that all foxes offered for importation into the United States from any part of the world, except those imported for zoological gardens or similar institutions, shall be subject to inspection by an inspector of the Bureau of Animal Industry. The foxes must also be quarantined under the supervision of the inspector of the bureau until it can be determined by inspection or examination whether they are affected with contagious disease. If such disease is found, the animals must be returned to the country of origin or be destroyed. This regulation went into effect on June 1.

The new regulation states that permits must be procured for all foxes offered for importation into the United States as provided by Regulation II for the importation of cattle, sheep, goats and swine, and all foxes imported for breeding purposes must be entered through ports designated for the entry of foxes as follows: Boston, New York, Rouse's Point, N. Y.; Calais, Me.; Pembina, N. Dak., and Seattle.

They must be accompanied by an affidavit made by the owner or importer declaring clearly the purposes for which the foxes are imported, viz., whether for breeding purposes or for zoological gardens or other institutions. Feed, attendants and quarantine will be at the expense of the owner, and each owner or his agent shall give satisfactory assurance to the inspector at the time of admission to quarantine that such provision will be made. The place of quarantine, its construction, arrangement and equipment will be subject to the approval of the Bureau of Animal Industry.

The demand for fur and the attractive prices which it commands have interested many people who are favorably situated to breed fur-bearing animals. A number of fox farms have been established in the Northern States. To encourage this work and to guide those who undertake it, the Bureau of Animal Industry has published Farmers' Bulletin 795, "The Domesticated Silver Fox;" Yearbook Separate 693, "Fur Farming as a Side Line," and Department Circular 135, "Maintenance of the Fur Supply."

Life is something else besides just living.

Many a man has been robbed of everlasting fame who didn't die soon enough.

If you are happy you have achieved success.



COAT AND HAT OF LEOPARD SKIN, COLLAR AND CUFFS OF FOX

Designed and manufactured by H. Jaeckel & Sons, Inc., New York—Shown at the
New York Fur Fashion Show

From Fur Trade Review, New York

The Importance of the Look-out in Fox Breeding

By ROBERT THOMAS MOORE

Many factors contribute to success in the breeding of Silver Black Foxes—selection of stock, methods of breeding, sanitation, pen construction, nest-box plans, and foods. That anyone of these is about as important as any other is obvious to a thinking person, for bad judgment used in handling any of these factors may spell failure, even when good judgment is employed in all the others. But there is one factor, which if not the most important specifically, has a wider general importance than all the rest and this is the Look-out. For its proper use has a direct relation to all other factors and makes possible the correction of mistakes in all the rest, because every phase of a fox's life, from his attitude toward the nest-box to his highly individual and vital peculiarities during the whelping season, may be observed unobtrusively from a well-located Look-out, so that frequently steps may be taken that will save a whole litter of pups. So extremely important is the Look-out that its careful use will determine whether the year's balance sheet reads plus or minus. Indeed, it will pay every new breeder to assure himself of a good site for this building, before he determines the situation of his pens, and it will pay every owner of ten pairs of thoroughbreds to keep a competent observer in the Look-out every hour of the day during the mating and whelping periods, if not the whole year round.

One illustration will be sufficient to prove this statement. On May 14th the author arrived at the Borestone Ranch after a month's absence. The following day he took the place of the regular observer at the main Look-out. A pup in a litter of eight escaped from a pen, from which no fox has escaped in six years. A pair of adults in an adjoining pen were observed trying to reach that pup through the netting with their paws and drag it through the holes. Immediate action saved the pup's life. The next day a second pup from the same litter was saved in the same way and this time the way of escape was discovered and blocked. The value of those two pups, based on actual cash paid for pups from the same parents in previous years would pay the wages of an observer for a whole year. Not only the two pups, but probably the whole litter would have been lost, if there had not been an up-to-date Look-out and an observer at the post.

This is only one illustration of many similar ones that occur throughout the year. For the sake of the novice breeder I will instance the most important crisis in a fox's life that can be profitably watched from the Look-out.

The fox year really begins in the Fall when old and young are paired for the coming mating season. Even before this is done it is important to know certain physical characteristics of the individual foxes of a litter. Inherited tendencies of the whole litter are known of course, if a careful record of the animal behaviour of each ancestor has been kept, and from this the breeder should have prepared in advance a sheet of tentative pairings, subject to last moment changes. Throughout the Summer and Fall the color of the pups changes considerably; some grow more silvery and some grow darker, as the guard hair develops and the black ends to the silver hairs increase in length. The wise breeder will discard those pups that do not develop these black tips, for it is this that makes the veiling, which adds much to pelt value, when the skins are sold. This

must be determined by catching the pups but there are other important characteristics that can be determined only by observing the animals, while they are unconscious of being observed. Not one fox in fifty acts exactly the same, when he knows the Keeper is in the ranch, as when he thinks no human is near. Only from the Look-out can it be determined which pups of a litter are the most active, the strongest and the most suitable for preserving as breeding stock. Even the question of disposition can best be determined from the Look-out. We have found that a fox that is extremely tame and hold in its relation to the Keeper may be the most vicious in relation to his mate or other foxes. Our tamest



ROBERT THOMAS MOORE

Borestone Mountain Fox Ranch, Onawa, Me.

fox, one that will eat out of the hand of any stranger, is the most dangerous to pups, not her own, if by chance they get out of their own pens and stray near this so-called "tame" fox.

After the foxes have been paired and placed, they should be watched from the Look-out to note if they are really congenial. A breeder, who does not have a Look-out, will usually determine this at feeding time, but foxes that scrap and snarl at feeding-time, may be very good-natured to each other throughout the rest of the twenty-four hours and make the best of mates.

One question that has been asked me more than any other is: "Do you remove the male from the female after mating has taken place?" My reply is that it depends on how the male acts while his mate is pregnant and after the pups are born. A few males are naturally vicious and should not be used, unless they possess certain valuable qualities that no other males in the ranch have. But there are more males, which simply because of their strength and vigor annoy their mates during this period of pregnancy and should be removed. This is especially true, where such a male has been paired with a female of nervous tempera-

ment. These characteristics of the foxes can be determined satisfactorily, if at all, only from the Look-out. Such observation will reveal unsuspected qualities in foxes, which are hardly credible. One of our males, "Borestone Sir Robert," is humanly tender and far-sighted at the whelping period. He and his mate have raised five large litters in succession. The first year she was frightened at whelping time and her pups were born outside of the nest box in the snow. When the pups were placed in the box by the Keeper, Sir Robert stood guard and prevented his mate from taking them out into the cold. The following year, when she was about to whelp, he drove her into the nest box and kept and fed her there until she gave up efforts to take the pups out. This is a valuable trait and one worth perpetuating in male offspring. But although few males are as wise as this one, many will at least feed their mates, when the pups are young and need the constant presence of the mother to keep them warm. Such males should always be kept with the female. Their characteristics can be determined most readily from a well-placed Look-out.

The mating date of each pair is an extremely important thing to know and record. Fifty-two or fifty-three days later the pups will be born and this date should be set down in the yearly ranch chart, so that at that time the female fox may be given special attention. Soft nourishing foods should be supplied and every action watched. Many a litter is saved, particularly of yearlings, when the whelping date is known in advance. There are so many indications that may be noted from the Look-out at this time of the year, that I can mention only a few. The majority of our foxes mate in the daylight hours, either before ten o'clock or after two. Such matings are observed from the Look-out and every detail of value recorded. For one who is experienced it is often possible to predict several days in advance when the mating will occur, just by the observed actions of the foxes beforehand. If the male does not act as a vigorous potent male should, the Keeper will at this time determine to discard him and subsequently, when the hour arrives, will substitute a polygamous male in his place. However, it should be stated that the value of a young yearling male cannot usually be determined until the last minute. Furthermore, when a mating fails to take place it is sometimes not the male's fault and, when this is true, he should be given a different mate the following year. Quite often a failure to mate may be laid to the female. In either case failure can usually be prevented by careful watching from the Look-out and the proper action taken promptly. Then there are some foxes that mate at night and cannot be observed, but their actions during the following daylight hours can be observed and these are often so peculiar that the proper date of mating can be registered with precision. My superintendent, Mr. Falconer, had thirty-two pairs under his own personal observation this year. So experienced has he become in watching from our various look-outs that he predicted in advance exactly what would happen in thirty of these pens. Of the other two one could not be observed from any of our look-outs.

The careful keeper should know when three-quarters of the whelpings will take place and should be prepared to take steps at the proper moment that will save the litter. Among those I have mentioned the possible removal of the male and the giving of special foods to the female. But there are more important matters. When the pups are born, the female goes into her box and usually does not reappear from one to three days. The male's actions at this time are revealing. If he enters the chute to the female's nest box and BACKS out, instead of turning around, it is a sign that there are live pups in the box. In our experience

this sign has never failed. If the female does not come out for three days, the box should be opened on the fourth, for there is probably trouble. A valuable proven breeder was saved in this way. Although she had not had trouble with two previous large litters, on this occasion a still-born pup nearly caused her death. Help at the right time saved her life and the life of three other pups that were subsequently born and lived to be healthy animals.

The Look-out is extremely important, in fact absolutely essential, if one is fortunate enough to possess a polygamous male. The rarity of such animals among first quality foxes and the difficulty of handling them according to the method commonly used has led many old breeders to discount their value. The Borestone method has undergone important changes during the past five years and today differs radically from the common practice. The author expects to write a paper on this at an early date. Space permits only a reference to certain phases of it here. The cross chute from one pen to another was discarded four years ago as valueless. Important elements of success are found in placing the chosen females in pens properly distanced from each other, in knowing the exact moment to introduce the male and in watching him every moment he is with the female. This is almost impossible without a modern Look-out and we know our great success in this phase of fox breeding is due largely to the effective position of our building.

An important value of the Look-out is to watch parent foxes after the young are born to determine if they are worthy parents. Fox mothers differ greatly in their attitude toward their young. Some are nervous and inclined to move their pups at the slightest disturbance. For our pens we have two nest-boxes, so that generally the change is made from one box to the other and does not cause trouble, but when the mother moves the pups to some hole in the ground, they are liable to die from exposure. This can be prevented by the use of the Look-out. This year a tame mother, which the author had watched, moved her pups when a day old to a hole and her peculiar actions were noted from the Look-out the next morning and revealed what had happened. As the ground was very dry and the day hot, the pups were not disturbed and it was decided to leave them in the hole while the weather remained fair. It was important to know where the hole was, so it might be dug out promptly.

Occasionally male parents, although good-natured to their mates, annoy their offspring or interfere excessively with maternal methods. These should be removed. We had a male parent that showed too much attention to his pups. He tried to carry them about after the manner of his mate, but his imitation was a poor affair and quite disgusting to the mother, for he siezed the pup by whatever end was nearest, so that frequently they were swung into the air by their tails, squealing like little pigs. At this the mother would grab the unlucky youngster by the neck and a tug of war would ensue which threatened to put in practice King Solomon's famous decision. Such usurpation of feminine functions could not be permitted and the male was banished to bachelor quarters.

When pups are twenty-one days old we give them all worm capsules. The advantages of this method far outweigh any disadvantages. Last year we did not lose one single pup from worms or any other disease. The use of capsules is a wise precaution, which would have saved many of the old ranches the losses they have had from this cause. The great advantage of this method is that pups afflicted with worms may be dosed *before* the worms reduce the vitality of the pups. Many pups die in the boxes from this cause and all traces of the pups are removed by the mother

fox, so that the inexperienced keeper does not know there was a litter. The disadvantage of the method lies in the fact that the disturbance of the nest-box causes the mother to move the pups. Therefore, immediately after the capsules are given she must be carefully watched from the Look-out to note what she does with the pups. Capsules should never be given on a cold or stormy day. Throughout the early life of the pups the Look-out should be used continuously, if possible. The unexpected is always happening and its early detection will often render it harmless. Even in the best constructed pens, pups will succeed in getting out, as was mentioned in the early part of this paper. On account of their small size it is often difficult to see them even from the best observatories, but fortunately the action of the adults will indicate where the pups are. Every adult fox takes notice of a pup in a part of the ranch, where it should not be, even if it does not belong to them. And if several adult foxes are observed looking in one direction with keen interest or trying to put their paws through the netting, you can be sure a pup is out. But they will not display this interest, if the Keeper is in the ranch. In fact they rarely act naturally when the Keeper is about, for either they are excited by the expectation of food or, if shy, are frightened by the human approach. Only from the Look-out can the unconscious natural actions of foxes be observed with success.

Some years ago a paper was written by the author which discussed the proper location of the Look-out. In this article it is sufficient to point out that the site of this building is of extreme importance. The old type of house, erected adjacent to and on the same ground level as the ranch, has two serious defects. First, any noise the observer makes in approaching is likely to be heard by the foxes. Second, even if the observer succeeds in entering the Look-out without being heard, he will be scented by the foxes. This kind of observation, that is observation of foxes that are conscious of being watched, is of little value. The best type of Look-out is one placed on a bluff or cliff that overlooks the ranch. The novice breeder should have this in mind, when he selects the site for his ranch. Such a Look-out can be approached from the back side. As it is higher than the ranch level, the scent from the observer will be carried over the heads of the animals. Our experience proves that noises coming from above and not accompanied by scent disturb the foxes very little, if at all. Furthermore a Look-out situated on a bluff will cost only a half or a third as much as the two and three story structures usually built, for a small, one story, one room building will be adequate. As the ranch increases in size, supplementary Look-outs may be erected at other points along the bluff. Our supplementary Look-outs are only six feet by six, just large enough to contain an oil stove, the observer and his chair.

From such well-placed observatories the animal behaviour and life histories of all the foxes can be observed and recorded. It will be found perhaps that due to topographical limitations some pens cannot be viewed from any of the Look-outs. We ourselves have one or two. Our practice is to place in such pens reliable proven breeders, whose temperaments are known to be even and not subject to fright. If good judgment and unflagging attention are employed in observations from the Look-out the breeder will be surprised at the great reduction in the proportion of his so-called "misses" and the increased average in number of pups.



Evening wrap of Ermine worn with a Silver Fox Scarf

Shown by J. M. Gidding & Co., New York,
at the New York Fur Fashion Show
From Fur Trade Review, New York

BIG DEMAND IN LONDON FOR HIGH PRICED FURS

German Buyers, With Plenty of Money, in the Market

Special Cable to "The New York Herald—Copyright, 1920,
by "The New York Herald"

New York Herald Bureau, London

Despite the high price of furs and the prospect of lower prices later in the season, unprecedented sales have been reported by leading retail furriers here. Silver fox skins were sold for £250 each. A representative of the Hudson Bay Company showed a reporter a Hudson Bay sable that was priced at 1,475 guineas (\$6,000), which, he said, "for the quality is cheap."

"There is a good demand for high priced coats, but, needless to say, we do not sell furs at more than £1,500 every day," he added.

A coat of sable wallaby, which wears extremely well, costs 42 guineas; of natural black musquash, 210 guineas; of mole coney, 27 guineas; of nutria, 6 guineas, and of real kolinsky, 339 guineas. Chinchilla wraps priced at about £500 have been selling well, and capes and ties of wolf, bear, marten and blue kit fox are popular.

Hudson Bay Company sales of musquash revealed a drop of 10s. in price since last March, while silver fox show an advance of 25 per cent.

One of the significant features of the fur sales here recently was the reappearance of German buyers.

"The Germans seem to have plenty of money and are taking large quantities of furs, as they did years ago," a prominent broker said.

**UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY**

WASHINGTON, D. C.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY
AND REFER TO

May 6, 1921.

The Editor,

AMERICAN FOX AND FUR FARMER,
406 Arcade Building,
Utica, New York.

My dear Sir:—

From the beginning of practical results in fur farming the Biological Survey has taken the deepest interest and an active part in promoting its development. We are conducting an experimental fur farm in northern New York where an expert is making a careful study of the parasites of fur bearers and conducting experiments in their control. A number of our experts have devoted much time to the study of problems related to the development of the fur-farming industry, and under an appropriation at the last session of Congress our work in this direction will be enlarged at the beginning of the new fiscal year, the first of next July.

The Biological Survey believes that there is a good field for certain lines of fur farming in many parts of the northern United States and in parts of Alaska. The industry has already attained considerable importance and hundreds of people are taking an active part in it. Permits or leases have already been granted by the Government for the use of more than one hundred islands for fox-farming purposes off the coast of Alaska, and in the United States inquiries made by the Biological Survey have developed the fact that more than 500 breeders within the boundaries of the United States are already actively interested in the industry.

A well-conducted magazine, along the lines planned for the "American Fox and Fur Farmer," should be of material assistance in informing the public as to the facts and opportunities in the fur-farming industry and you may count on the sympathetic cooperation of the Biological Survey in all legitimate efforts to place fur farming on a substantial basis either as a side line in connection with other agricultural pursuits or as a definite business occupation.

In this connection it may be well to call attention to the several publications already issued by the Biological Survey pertaining to the fur-farming industry, which have had a considerable circulation among those interested.

Very truly yours,

E. W. Nelson

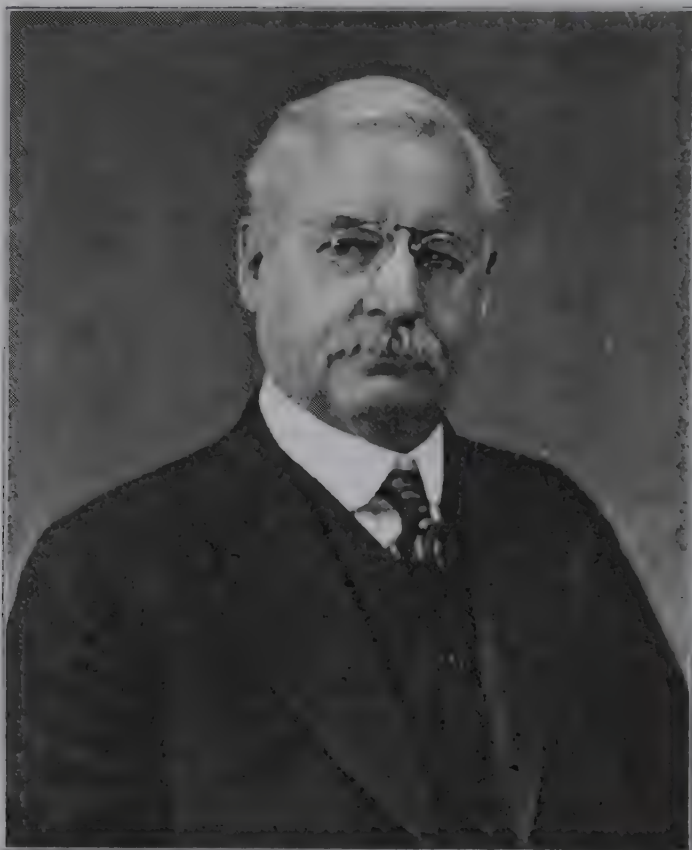
Chief of Bureau.

DR. E. W. NELSON, Chief, Bureau of Biological Survey U. S. Department of Agriculture

By DIXON MERRITT

Practical men, who are also trained scientists, head the seventeen bureaus of the United States Department of Agriculture. The Chief of the Bureau of Biological Survey, Dr. E. W. Nelson, is an example of this fact. He was born in

in Alaska at the age of 22. The Alaska of that day was best described as "she's wild." Four years were spent making weather observations and in natural-history explorations, including the first mapping of a large unknown area. Dog



DR. E. W. NELSON, CHIEF, BUREAU OF BIOLOGICAL SURVEY
U. S. DEPARTMENT OF AGRICULTURE

A man who has done much for fur farming in the United States

New Hampshire and after his father became a Civil War soldier, he lived on his grandfather's farm in northern New York until he was 14 years old. There he had the usual general-utility experiences of a boy on a short-handed farm. He later lived in Chicago for a number of years and the varied bird life of the prairies, oak ridges and lake shore so interested him that his career as a scientist followed. In 1877, twenty years before the discovery of gold brought in white men to replace the widely scattered fur traders he was sleds were his only means of transportation over thousands

of miles of trackless snow. While in the North he penetrated far beyond the Arctic Circle as naturalist on a relief expedition in search of the lost Arctic steamer "Jeannette." Some of the results of this northern work were the publication of a volume on "The Eskimos about Behring Straits" and another on the natural history of Alaska. A considerable island first mapped by him was named in his honor.

Dr. Nelson went back to Alaska last summer and found that out of the twenty-odd white men who made up the scanty population of the Yukon region in his time only one

is alive to-day. The Society of Alaska Pioneers at Nome—who pioneered a good many years after he did—elected him its first honorary life member.

For six years following his Alaskan experience he owned and lived most of the time on a cattle ranch in Arizona.

Fourteen years of Dr. Nelson's life were spent in conducting scientific explorations in Mexico and Guatemala for the Biological Survey. The result of this work was an accumulation of the most extensive collection of birds and mammals and the most complete records of its wild life ever made in Mexico. Hundreds of previously unknown birds, mammals and plants were found and have been described from these collections.

In 1905-6 he led a party exploring on horseback the peninsula of Lower California, 800 miles in length. As a result the first comprehensive account of the peninsula with the most detailed map yet prepared are being published by the National Academy of Sciences.

Dr. Nelson has published a large number of monographs and minor scientific papers, a popular volume on the mammals of North America, and many travel articles in magazines.

In addition to his interest in the scientific side of nature, he is one of the well-known big-game hunters of the country, having hunted from the Arctic ice-pack to the jungles of the Tropics.

He is an honorary life member of a number of scientific societies and of the Boone and Crockett Club of New York City, the leading American organization of big-game hunters, which was founded by Theodore Roosevelt. The honorary degree of Master of Arts has been conferred upon him by Yale University, and that of Doctor of Science by George Washington University. He is an ex-president of the American Ornithologists' Union, the leading scientific society for the study of birds in America. His connection with the Bureau of Biological Survey began in 1890, when he was employed as field naturalist on the Death Valley expedition. He later became chief field naturalist of the bureau, then assistant in charge of biological investigations, then assistant chief, and on December 1, 1916, he became the head of the bureau.

The main purpose of the Biological Survey is the conservation of beneficial forms of wild life and the development of methods for controlling the harmful forms. The bureau began its work many years ago with studies of the distribution and habits of birds and wild animals. This led to investigation of their relation to agriculture and the knowledge gained has served helpfully to aid in bringing about laws in practically all the States for wild-life protection. It has led, also, to a nation-wide campaign against rodents, from house rats and field mice up to ground squirrels, jack rabbits, prairie dogs, and the like, which destroy \$500,000,000 worth of property a year, and against predatory animals which are estimated to destroy from \$20,000,000 to \$30,000,000 worth of live stock on the western ranges each year. The bureau maintains an organization in 18 Western States where these animal pests are most destructive.

The campaign against stock-destroying wild animals, such as wolves, coyotes, mountain lions, and others, being conducted in these States has resulted in building up perhaps the largest hunting organization in the world. From 200 to more than 400 hunters and trappers, according to the season, are employed in this work and include many of the most skillful trappers in the country. More than 3,000 gray wolves have been killed and a total of probably more than 200,000 of all kinds of predatory animals. The Bureau specializes on notorious stock killers which through their cunning have long evaded capture. One wolf of this char-

acter killed in Wyoming had a record of about \$25,000 worth of stock destroyed during the three years before it was killed. The stories of the trailing and destruction of some of these cunning beasts of the field are of much interest.

More than \$1,000,000 has been contributed by States, local organizations, and individuals during the past year for co-operation with the Biological Survey in its campaign against predatory animals and injurious rodents. More than 130,000 farmers in the western States personally took part in this work, as a result of which, according to returns from the farmers and stock growers, there is a saving of many millions of dollars in live stock and crops each year.

During the war the members of the staff of the Biological Survey were acting in preventing destruction of army stores on a large scale by rats. Several members of the staff were in France in this service, and the quartermaster officer in charge of the vast army stores in Brooklyn reported that by following out the plans of the Survey in one year more than 35,000 rats were killed in one series of warehouses containing millions of dollars' worth of food and other supplies, with the result that the stores were so thoroughly protected that the total damage for the year did not exceed \$50.

In its study of the food habits of birds the Survey experts have examined more than 70,000 stomachs and the knowledge gained demonstrated the fact that birds are of great usefulness to agriculture in the destruction of injurious insects. Owing to the constantly increasing population of the country, the destruction of bird life became alarming. In order to prevent this, so far as possible, the Migratory Bird Treaty was negotiated for the protection of birds in the United States and Canada, and Congress passed an act to put the treaty in force. The law is administered by the Survey. As a result of the treaty and the law, a notable increase in birds, both game and nongame species, has resulted throughout the country.

The Survey has supervision, also, of the introduction of birds and small animals into the United States. Importations are examined at ports, where useful species are admitted and the injurious ones sent back or destroyed. One Survey was the investigation of the distribution of birds, of the big pieces of work undertaken by the Biological mammals and plant life in relation to climatic of life zones.

The distribution of native wild life forms reveals conditions favorable to certain crops and thus is of practical importance in agriculture, as well as in other affairs. Here is an illustration. The northern limit of what scientists call the lower austral zone, worked out by the Biological Survey on the basis of birds, mammals and trees, shows very closely the northern limit of the natural distribution of the yellow fever mosquito.

The Biological Survey administers the Federal bird and game reservations on which the wild life of the country is given protection against ever-increasing dangers. The bird reservations include some of the best breeding places for wild fowl throughout the United States, Alaska and Hawaii. Millions of wild fowl are thus enabled to nest safely and to keep up their numbers under conditions that, without protection, would lead toward extermination. On the big-game reservations the same sort of protection is given to buffalo, elk, antelope, and deer.

Fur farming, an industry that has become a necessity if the supply of pelts in this country is to continue adequate to meet the demand for furs, is being developed by the Biological Survey.

The work being done by the Biological Survey in the administration of the Migratory Bird Treaty Act and other activities for the conservation of our wild life is of direct interest to a vast number of nature lovers throughout the

country, as well as of practical value in helping increase the game supply for our more than 6,000,000 hunters who go afield, gun in hand, each year.

Dr. Nelson considers the friendly co-operation on a large scale which the Biological Survey has built up during the last few years with State and local officials, organizations and individuals interested in all of its lines of work as its most valuable asset in increasing the usefulness of the bureau.

The usefulness of the Biological Survey is developing rapidly. It is generally regarded as a center of information on wild life in America and is rendering scientific and practical benefits in the conservation of beneficial species of mammals and birds, and in the extermination of harmful ones. Applications for information and methods come to the bureau from all parts of the world. It is consulted by State institutions, organizations and individuals.

Last winter Congress gave the Survey the administration of the laws protecting the land fur-bearing animals of Alaska and placed in its hands the investigation and development of the reindeer industry of Alaska—a new source of meat supply. The reindeer experiment station personally established by Dr. Nelson last summer on the shore of Bering Sea is already getting results of much practical value.

The Biological Survey touches agriculture in many important points. It promotes the interest of other industries, and is of vital interest to the sportsmen of the country.

FEATHER FARMING

By Christopher Hulme

There was a time when the word "farm" was understood to mean some place where produce or stock was raised. Now there can be almost any kind of farm, from a sheep farm to a rattlesnake farm. We read of fox farms, where these animals are reared for the sake of their beautiful fur; skunk farms, where these uncertain animals are bred for the same purpose; alligator farms, where these ugly brutes are raised, so that the pocketbook and the shopping-bag trade may thrive and prosper, and so the traveling show can purchase "crocodiles from the Nile" at a living price. Oyster farms and fish farms there are, also, though the last two can be visited only by diving. But none of these freak farms are more interesting or profitable than the ostrich farm, where at harvest time great bunches of plumes are gathered for the millinery trade.

Such farms are nothing new in Southern California and in Arizona, and more recently Texas, Arkansas and Florida have been advertising them as added attractions. But to see the industry at its best, one would have to travel to that part of Africa which lies along the borders of the Sahara Desert. This is the ancestral home of the ostrich, and nowhere else do they thrive so well.

It was well along in the eighteenth century before it became known that ostriches could be tamed and domesticated. An English farmer living near Cape Town first demonstrated that this could be done by catching young ostriches and placing them in fields so fenced that they could not escape, and giving them as nearly as possible the same food they would get in their wild state. They became quite tame, and when grown, scratched out nests in the sand, just as their ancestors had been doing since the beginning of history, laid regulation ostrich eggs, and proceeded to hatch them in proper ostrich fashion. Their owner made them pay for their board and keep by plucking their plumes twice a year. The farmers of Africa, like the farmers of every other part of the world, were just waiting for some one with a vision to come along and show them how. When it was seen that the business was profitable, other farms were started.

Feather-farming developed so rapidly that it has become one of the leading industries of South Africa. In fact, it has grown to such proportions that the birds cannot be depended upon to hatch eggs in sufficient quantities, and huge incubators must be provided.

Hundreds of thousands of ostriches are hatched every year. Thus the output of feathers brings a steady flow of currency into the country, as they find a ready sale throughout the civilized world.

Up to the time the ostrich was domesticated, the plumes were taken after the bird had been hunted and killed. This was a very wasteful method, as the ostrich furnished only a single crop of feathers before losing its life. The slaughter of these great birds has been going steadily for so many centuries that they have almost disappeared, and are found only in the wildest parts of the country. So in their case captivity may mean the saving of the species.

A recent traveler tells us that the ostrich farm he visited—and it was typical—contained fifteen thousand acres, and was inclosed by a tall, strong wire fence. The ground was divided into many smaller fields by the same expensive fence. Some of the pastures were occupied by adult birds, while others held young ones of various ages, and some were given over to mated birds that were laying. In a general way, birds of about the same size were herded together.

Baby ostriches grow rapidly, and when four or five weeks old are as big as turkeys, and before they have passed their second birthday, the feathers are ready for plucking. The first feathers are of little commercial value, but they improve as the bird grows older. The plucking is done regularly every six or seven months. When an ostrich is about four years old the feathers are as perfect as they ever will be, and for thirty or forty years a male bird may yield plumes to the value of from twenty to fifty dollars for each plucking. That is, if there is a normal demand for the plumes.

Fashion is fickle, and sometimes decrees that plumes will not be worn for a season or so, and then the ostrich farmer loses money. His feather crop finds a weak market, though his feather plants eat as much as they ate in the biggest "feather" years. As they are such voracious feeders, they fairly eat their heads off. During the War the world had something more important to think of than the trimming of hats and the making of fans, so for four years the industry was practically ruined. Ostriches that were valued at one hundred and fifty dollars or more would not bring five, and the feathers were worth nothing.

Harvest time on an ostrich farm covers every month in the year; the birds are plucked whenever their plumage happens to be at the right stage. About a hundred birds are separated from the flock and driven by mounted Kaffirs into a small inclosure where the feathers are to be taken.

An army mule has nothing on an angry ostrich when it comes to artistic kicking, so the process of separating the birds from their plumes has always a spice of danger. At one end of the inclosure are small stalls into which a single bird is driven. Bars are put up, and a long stocking-like bag is pulled over the eyes, the ostrich becomes quiet, and makes no further protest. The operation is known as plucking, but the feathers are really clipped, not pulled, and the process is painless. The white and black plumes of commerce are from the wings and tail of the male, while those from the female are brownish, and usually are dyed before they are sold. Each wing yields about twenty-five salable plumes, and the tail about fifty. The shorter plumes are known as "tips." About three hundred feathers are taken from each bird, and in six or seven months they will be ready for plucking again.

Hints to Beginners on Fox Ranch Management

By SAMUEL F. WADSWORTH, M. D. V.

Boston, Mass.

In this article the writer will try to tell, in an understandable way, methods of looking after the ranch and foxes that have worked out well in actual practice.

The first important consideration, when contemplating building a ranch, is to select a desirable location. It should be in a reasonably quiet place but not necessarily secluded.

amount of shade is necessary and small trees and shrubs can easily be set out where there is no growth. Direct sunshine is the best and cheapest disinfectant for your ranch.

In constructing a ranch, great care must be taken to have the work thoroughly done; no makeshift pens of cheap material will safely keep the foxes in bounds. The size



DR. SAMUEL F. WADSWORTH, M. D. V.

Boston, Mass.

The ground best adapted should be gravelly with a hard pan sub-soil, sloping sufficiently to insure perfect drainage. Never select low, damp, swampy or moldy soil for a fox ranch. Most any tract of waste land that has been cut off and is growing up to brush, small pines, birches, etc., makes an ideal place for a ranch. If such land cannot be obtained, an old pasture is good—much better than building in heavy growth, where very little sunlight strikes the ground and where the soil is apt to be damp and heavy. A certain

of the pens varies greatly in different ranches, but the writer believes that at least fifteen hundred square feet should be allowed each pair. The ground keeps much cleaner and a larger range is beneficial.

Unless it is absolutely necessary because of a deep, light sandy soil, do not carpet the ground with wire. Ordinarily, if the wire is put into the ground at least three feet, it will be found to make a perfectly tight bottom. For outside fences, use nothing larger than one and one-half

inch mesh, No. 16 galvanized wire. If the pens are built so as to allow a two-foot space between, then the one and one-half inch mesh can be used all around, but if the pens are closely adjoining, use one inch mesh, No. 16 wire, on each side of the posts. Do not fail to put up a good substantial overhang of at least two feet. Occasionally a fox develops into quite an acrobat, and I know of one fox that could negotiate a four-foot overhang by hanging by his front claws and working himself out to the edge, then drawing himself up and over.

I believe that unless the ranch is to be in a very secluded spot and in a place where no one is likely to go, it is much safer to have a tight board guard fence at least nine feet high and from fifteen to twenty feet distant from the pens. It gives the foxes a feeling of confidence, and prevents them from seeing disturbing sights, such as stray animals, and strangers who might be in the neighborhood. The guard fence should be equipped with overhang and a two-foot carpet wire should extend in on the inside.

Some believe that a board fence nine feet high keeps out all the breeze in hot weather, but this is not so if the fence is at least fifteen feet from the pens.

The question of dens is one of great importance. There are several plans of fox houses, any one of which might be advantageously selected. Two houses to a pen should be installed, and if the pens are to be fifty feet long, put a partition through the middle from side to side, with doors at each end. Then if it is necessary to remove one of the foxes, there is a place all ready close by. One pen should contain one simple house or shelter, while the other contains the two breeding houses. The object of the two houses is so that if the female with young becomes frightened or dissatisfied with one house, she has another place to go.

The question of whether or not it is advisable to allow the mother fox to have her young in the ground has been freely argued. If the soil is dry, and composed of good gravel, I can see no objection to letting the young be born in their natural habitat. For four years I have allowed this, and not a pup has been lost. Some of the foxes will have their young in the ground and for some reason will carry them into the house, and perhaps later into the ground again, or they may have two or three burrows and use them all. By allowing this, I have never had a mother fox carry away her young and destroy them, as a great many do.

The argument against this method is of course that if anything goes wrong with the pups, you cannot readily reach them, or treat them for worms, if necessary. But do not allow your foxes to become infested with worms, and remember that when a fox digs her burrow and makes her own nest, it is absolutely clean and the young have the advantage of clean surroundings and a sanitary nest.

When you have selected the foxes you intend to place in your ranch, be sure that they are healthy in every respect. Do not put them into the pens until they have been thoroughly treated for worms, and be sure that the ranch from which you procure them is not infected with any contagious disease. Healthy parents mean healthy offspring and a diseased fox is a source of danger in any ranch.

After the foxes have been placed in the pens, observe them carefully; look for any individualities; be sure they are well-mated, happy, and contented. If a certain pair is fighting and continually quarrelling, separate them for a time and see if their dispositions change toward one another when put together again.

It is very important to have the confidence of your animals. Always be calm; do not shout or talk loud; move in a natural, quiet way, and try to make the same moves each time you attend to them. That is, if you begin feeding

at a certain pen, feed this pen first each time, and so on with a regular routine. Get the foxes to eat out of your hand; go in the pen at least twice a day; talk to them; give a tidbit occasionally. They appreciate dainties, and grow fat on kindness.

Ordinarily, twice a day is often enough to feed them. There are many good methods of feeding, and many different kinds of food are good, as long as it is perfectly sweet and clean. Fresh horse meat, beef, hearts, tripe, liver, chicken heads, rabbits, pigeons, new milk, sour milk, raw eggs, common crackers, fox biscuit, cereals, corn-bread, boiled vegetables, rice, crushed wheat, raisins, grapes, apples, constitute a bill of fare of sufficient variety. Do not feed all meat or all starchy food; give a proportion of each so as to form a well-balanced ration. Cooked foods should always be seasoned with salt. Charcoal is relished by them and an easy way to supply charcoal is to keep a charred log in each pen.

Foxes like an abundant supply of clean fresh water. It should be kept before them constantly and in containers that cannot be soiled or upset. Keep them in the shade and refill at least twice a day in warm weather. Also be sure that all feeding and water dishes are thoroughly scalded and washed frequently.

When it is time to mate the foxes, there are a few points it is well to bear in mind. It is always wise and safe to put strange males and females in pens side by side for two or three weeks before placing them in the same pen. Be careful when mating an old female with a young male; this has often resulted in the female killing the male. When mating or re-mating, an abundance of food should be given; this will help to keep them quiet and contented.

If they are going to be a contented, well-mated pair of foxes, the chances are that the act of breeding will take place when the female is in the proper condition. This period is short in the fox, lasting, under normal conditions, from one to three days. After connection has taken place, the female should be heavily fed.

Corn-bread is excellent, given three times a week; a raw egg every day; new milk if they care for it; one-half pound of fresh beef once a day five days a week; horse meat occasionally; pigeons, rabbits, or chicken heads once a week. Probably good fresh lean beef is the ideal food for the pregnant female. About one week before whelping time, give ten drops of milk of magnesia in the milk each day; give all the new milk she will drink, and at least one raw egg each day. After the young are born, I make no radical change in feeding, except one freshly killed pigeon is given soon after. This makes an agreeable change and she is content with the fresh tender meat. The male is kept well supplied with a good variety of food.

If the male is quiet and is always solicitous of the welfare of his mate, there is no necessity of taking him away before or after the puppies come. He is a sort of guardian angel, a good provider for the family, enjoys a romp with his offspring, and adds to the appearance of a very happy family.

When the pups are from twenty-five to twenty-eight days old, they will be coming out. At first only one or two may be seen, and unless they have been examined while in the nest, it may be several days before the entire litter is seen. The little fellows at this age can crawl through a pretty small hole, so be sure your pen is absolutely tight, or the young might get into another pen, usually to be destroyed at once by an old fox.

My method of feeding fox puppies differs from the ways of many. I do not put any milk in or near the shed or burrow. I keep it at least ten feet away, so the young

foxes cannot have any milk but their mother's until they can walk that distance. The first food I want the pups to have is meat; bits of raw beef, a fresh killed pigeon, picked and cut up in small pieces; bits of fresh tripe are given liberally once a day. The idea is to get the intestinal residue established as soon as possible, thereby lessening the danger of starvation should worms be present. Then I want to get good clean earth and sand in the stomach and intestines. This is accomplished by allowing the parents to bury the food, as they will do, before giving it to the young. In the morning the little fellows get good sweet whole milk, to which is always added a few drops of milk of magnesia. (Lime water is never given.) Cracker, stale whole wheat bread, and shredded wheat is added to the milk, into which is put one beaten raw egg. They have all of this they can eat. At night they have all the heavy food they can eat, as the old ones give it to them. The meat is never put in dishes, but scattered over the ground. I have never treated one of my pups for worms—have never seen a worm nor a symptom of worms. I am thoroughly convinced that this method of feeding fox pups is one that will be found to partially solve the worm problem. Of course the old foxes are watched carefully, and examination for worms made several times a year.

When the little fellows are from ten to twelve weeks of age, they are put in a pen next to their parents. Here they get individual care and attention, are trained to a certain extent to know their names and the meaning of certain words and sounds. They can be fed as one sees fit to get the best development for breeding stock or to put them on the right track for the fullest growth of fur.

When an animal is to be killed for his pelt, he is carefully closed in the catching box, into which is placed the chloroform sponge, causing death in less than two minutes without any shock or fright.

SILVER BLACK FOX FARMING OF INCREASING IMPORTANCE

(From United States Department of Agriculture)

Approximately 4,849 Silver Black Foxes are being bred in captivity in the United States, according to reports to the Bureau of Biological Survey, United States Department of Agriculture, from two hundred fifteen fox ranches, representing a value in animals and equipment estimated at \$4,279,830. All reports have not yet been received, and conservative estimates place the number of Silver Black Foxes in this country at from five to six thousand. Some ranchmen estimate the number as high as ten thousand.

Statistics on the fox ranching business being gathered by the bureau indicate that fox raising in the United States, especially in the northern tier of states, is rapidly becoming an important industry. The information sought has to do chiefly with the location and number of ranches, number of foxes, and money invested.

Prince Edward Island, Canada, is regarded as the center of the industry. Many foxes are now bred in captivity in a great number of States, including Maine, New Hampshire, Vermont, Massachusetts, New York, Pennsylvania, Ohio, Michigan, Wisconsin, Minnesota, Illinois, Iowa, Montana, Idaho, Oregon, Washington, Colorado, and California, and in Alaska. It is probable that there are other States in which fox farming is carried on, as the records of the bureau are not yet complete.

Ranchers Reticent About Their Business

Officials say it is very difficult to secure authentic information for the reason that some ranchers decline to fill out

and return the questionnaires sent them. Many ranchers, who volunteer information, report it in such a manner that it is sometimes very difficult to interpret. Then, too, in addition to raising Silver Black Foxes, some ranchers keep red and cross foxes, skunks, martens, and muskrats; the amount of money invested and reported, therefore, in such cases naturally covers the whole project, making it impossible to allot the correct amount for breeding Silver Black Foxes. Some ranchers board foxes for other breeders, which also adds to the difficulty of securing correct information. These facts, it is said, should be borne in mind in determining the value of the following figures concerning Silver Black Foxes. These figures are preliminary, as the reports have not all been received.

Approximate number and value of Silver Black Foxes and fur farm equipment reported in the United States:

	Number of Ranchers	Number of Foxes	Value of Animals and Equipment
California -----	2	14	\$ 20,000.00
Colorado -----	3	9	10,200.00
Idaho -----	1	4	3,000.00
Iowa -----	1	7	2,000.00
Illinois -----	1	20	7,000.00
Maine -----	41	910	530,350.00
Massachusetts -----	17	488	758,700.00
Michigan -----	70	1,295	990,375.00
Minnesota -----	14	516	217,300.00
Montana -----	5	130	134,000.00
New Hampshire -----	3	68	54,500.00
New York -----	18	510	733,205.00
Ohio -----	5	40	112,700.00
Pennsylvania -----	4	189	61,500.00
Wisconsin -----	22	551	493,200.00
Vermont -----	7	96	49,200.00
Washington -----	1	2	2,600.00
	215	4,849	\$ 4,279,830.00

The permits issued by the Department of Agriculture for the importation of foxes into the United States from Canada for the year 1920 totaled eight hundred and five as compared with three hundred and thirty-five in 1919. Here, again, it is impossible to ascertain the exact number of foxes coming in for the reason that many are brought in for exhibition purposes and then returned to Canada. The number of Silver Black Foxes in Canada in 1919 is given in a preliminary report of the Dominion Bureau of Statistics as six thousand, four hundred and thirty-three, with animals valued at \$3,013,115, not including equipment. There were two thousand twenty pelts sold at a total valuation of \$482,364. These figures, it is said, are as nearly correct as it is possible to secure; but it is thought that there are undoubtedly many more foxes in Canada than are here reported.

RAID FUR LOFTS

Steeple Jack Bandits Get Rich Haul

New York—Steeple Jack robbers made away with \$100,000 worth of furs from the Vogel, White & Company lofts in Thirty-sixth Street. Two men working most of the night lowered the furs from the eleventh story of the building and took their spoils out through another building while a janitor held the door open for them.

The men raised themselves and lowered the furs by means of pulleys and a 300-foot rope. Part of the time they clung to window ledges and once they were compelled to cross a court bridged only by a narrow plank.

The hardest thing in the world is getting in soft.

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AMERICAN FOX BREEDERS' ASSOCIATION

229 CONGRESS STREET, BOSTON, MASS.

Bulletin, June, 1921

At the meeting of the Standard Committee held May 24 at the office of the President, M. S. Thompson, there were present: Chairman, S. F. Wadsworth, R. T. Moore and George Brackett. The other members of the committee, Dr. Ned Dearborn and J. S. Sterling were not able to be present.

After much deliberation on the part of the committee, there was evolved by them, an outline of all the points used in scoring and judging live S. B. Foxes. This was embodied into a "Suggestion of the Standard Committee for a Schedule of Points for the Standard."

This suggestion will be submitted as the viewpoint on the Standard of our Association, at the conference of the Standard Committees from the several Associations. This conference is expected to be held in Montreal early in September.

QUARANTINE

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ANIMAL INDUSTRY

Amendment 7 to B. A. I. Order 266 (Regulations for the Inspection and Quarantine of Horses, Cattle, Sheep, Swine, and Other Animals Imported into the U. S. Effective June 1, 1921)

Under the authority conferred by section 2 of the act of Congress approved February 2, 1903, (32 Stat., 791), the regulations of the Secretary of Agriculture for the inspection and quarantine of horses, cattle, sheep, swine, and other animals imported into the United States (B. A. I. Order 266) issued under date of August 30, 1919, effective September 1, 1919, as amended, are hereby further amended as follows:

IMPORTATION OF FOXES FOR BREEDING PURPOSES

All foxes offered for importation into the United States from any part of the world except foxes imported for zoological gardens or similar institutions, shall be subject to inspections by an inspector of the Bureau of Animal Industry and to quarantine under the supervision of an inspector of the bureau until it can be determined by inspection or examination whether such foxes are affected or infected with ascarids, hookworm, coccidiosis, mange, distemper, or any other disease contagious to foxes.

Diseased foxes must either be returned to the country of origin, or destroyed.

Permits must be procured for all foxes to be offered for importation into the United States as provided by Regulation 11, for the importation of cattle, sheep, goats, and swine, and all foxes imported for breeding purposes must be entered through ports designated for the entry of foxes as follows: Boston, Mass.; New York, N. Y.; Rouses Point, N. Y.; Calais, Me.; Pembina, N. Dak.; and Seattle, Wash.

They must be accompanied by an affidavit made by the owner or importer declaring clearly the purpose for which said foxes are imported, viz., whether for breeding purposes or for zoological gardens or other institutions. Feed, attend-

ants and quarantine will be at the expense of the owner, and each owner or his agent shall give satisfactory assurance to the inspector at the time of admission to quarantine that such provision will be made. The place of quarantine, its construction, arrangement, and equipment will be subject to the approval of the Bureau of Animal Industry.

This Amendment shall become effective on June 1, 1921.

Done in the District of Columbia this 7th day of April, 1921.

Witness my hand and the seal of the Department of Agriculture.

E. D. BALL,
Acting Secretary of Agriculture.

SOCIAL

Some advertisers of live foxes on P. E. Island speak of large litters. This office has reports of nine pups in one litter, at Mr. Moore's Borestone Ranch, and litters of eight, from H. B. Prescott's and G. S. Tuttle's ranches, and all doing well.

Let us hear from your best litters. We are interested and so are our callers. If you cannot call in person, write. Call in and see us when you can, talk fox, and swap experiences with your fellow fox breeder.

Excellent reports are also in from the ranches of E. G. Pond, H. S. Kelsey, Dr. S. F. Wadsworth, Dr. Ned Dearborn, The Sheffield Ranch and from our President, M. S. Thompson.

Frank G. Ashbrook of the U. S. Biological Survey, was a recent caller. Mr. Ashbrook is making a survey of the fox ranches of the U. S. and Canada. It is indeed a pleasure to have him call as he is fully alive to the fox industry in all its different branches. The Government and the fox breeders are fortunate in having such a tactful and sincere gentleman investigating and reporting the industry.

CAUTION

A mother fox in the wild state will of course occasionally bring to her young, a woodchuck, rabbit, etc. She cannot do this every day; sometimes when danger lurks near, it is quite another story, and the young foxes have to go without meat for their meals. Just a word—perhaps superfluous—but you know, meat is heating to the entire system of the animal, gets tainted easily, attracts flies in warm weather. Tainted meat has already this year caused the death of over seventy-five foxes in one locality alone on P. E. I. Better not feed any meat at all in hot weather unless you are positively sure that it is sweet. Even then feed meat very sparingly and use your best judgment during the summer months.

"CLIPPINGS"

FUR TRADE PLANS GREAT EXHIBIT IN CHICAGO
PAGEANT OF PROGRESS

By Florence H. Moore

The coming Pageant of Progress, which will take place in Chicago from July 30th to August 14th, continues to

occupy the attention of not only those connected with the fur industry, but all others as well. It is said by those familiar with the history of Chicago's growth, that this pageant will even eclipse the great World's Fair. Chicago furriers are keenly alive to the impetus it will give the fur industry and are up and doing to see that furs, as a business of accumulative development, are well up in front of the procession of the long line of industries which will be represented.

There will be close to one million dollars' worth of furs on exhibition, displayed by about sixty live models, with a stage setting that will rival the Arabian Nights for a background. There will also be a band for the fur industry exclusively. Fur merchants will display their models from booths and may take orders directly from them. The goods, however, will be delivered from their establishments. A modern fur farm will show live fur bearing animals of all kinds and will be of educational interest to the public. An exhibit showing how furs are dressed, plucked and dyed and made ready for the manufacturers will form another part of this great industrial pageant. A space for the various industries has been divided into sixteen sections, consisting of 10,800 square feet to each section.

A. Goldsmith, of A. Goldsmith & Co., is chairman of the committee on furs. The other members of the committee are: Wm. Hale Thompson, I. S. Greenburg, Ludwig Pottasch, I. E. Bach, Henry F. Kramer and R. Lustgarten.

"The pay check comes home now, to help buy the wife a fur coat, instead of going to the saloon." A. B. Shubert's eyes show he enjoys a joke when he smiles, but who in the fur industry wouldn't rather the pay check go "fur" a fur coat? Mr. Shubert can see no shoals ahead for the fur business. As a matter of fact, he believes it is in much better shape than many other lines, following the aftermath of the highly sensational and prosperous jag when everybody was riding the breakers without exactly knowing where they were going. This, too, notwithstanding the entire catch of American raw furs in all articles was not over 30 percent. of normal and in many cases it fell 60 percent. short of normal.

SUMMER FURS NO LONGER A JOKE

There was a time, not so long ago, when furs around a lady's neck in July, stamped her as being "queer" and yearning for sensation. The idea served one good purpose. It furnished the humorously inclined writers subject for many a pun. It also gave the much worn out "mother-in-law" a rest and, dear knows, she needed it badly enough—From "Fur Age" May issue.

FOX RANCHING

At one of the fox ranches which the firm of Holt, Renfrew and Co. operates about the city of Quebec, thirteen families of blacks, silver and cross have been added in the past month. It is some years since fox breeding started there, and it has grown to an extensive and very profitable industry.—From *Journal of Commerce Weekly*, May 17, 1921, Gardenvah, P. Q. Canada.

MEMBERSHIP

The Association is fortunate in recently having such substantial, intelligent, solid business men make their application for membership in our pioneer Association. The names of the gentlemen will be voted on at the next meeting of the Board of Governors and they will surely prove an asset to us. Men that are leaders in their chosen vocations, when banded together, will surely leave to posterity many things of worth. All members of the A. F. B. A. must feel that this association is the culmination point of standard

in all matters regarding the domesticating of the Silver Black Fox. You as a member yourself, should call or write as often as you can to this office. There is a fund of knowledge here. You, also, have facts, ideas and experiences that are worth while. Work for your Association. It is working for you, not to make capital, it wasn't originated with that idea.

REGISTRATION

REGISTRATION

You will need to register your pups this fall; have you enough registration blanks? The new rancher has been wised up to ask for foxes registered with the A. F. B. A., when buying, and the old timer surely won't buy anything else.

It shows good business acumen to have all your foxes registered with the A. F. B. A. The cost of registration is very small compared to the enhanced value it puts on your stock.

DUTY

There is nothing definite to offer you about the proposed duty on importations of live foxes or on fox pelts. We will try and keep you posted as we keep in touch with the Federal and State Departments on all matters concerning live foxes and pelts.

The different litters of young foxes which have been nursed by cats, are all reported as now weaned and doing well, one hundred per cent have lived that we learned about. The litter of fox pups that were being brought up by hand, fed by a medicine dropper at the ranch of Geo. O. Bartlett, Wrentham, lived ten days. Extremely hot weather soured the milk at the midnight feeding, which was not noticed and the next day the pups died.

"We all learn a lot by experience."

CANADA'S RAW-FUR PRODUCTION IN 1919-20

The Dominion Bureau of Statistics has completed its census of raw furs for 1919-20. The preliminary statement shows the total value of pelts of fur bearing animals taken in Canada during the period to be \$21,197,372. To this total Ontario contributed \$6,414,917, Quebec \$4,587,110, Manitoba \$3,130,627, Saskatchewan \$2,338,761, Alberta \$1,550,009, Northwest Territories, \$1,118,972, British Columbia \$742,242, Prince Edward Island \$660,704, Nova Scotia \$287,990, New Brunswick \$225,871, and Yukon Territory \$140,169.

The principal furs in order of value were: Muskrat, \$5,966,762; beaver, \$5,336,067; marten, \$1,787,940; mink, \$1,697,561; silver fox, \$932,602; fisher, \$859,178; coyote, or prairie wolf, \$727,093; white fox, \$713,210; red fox, \$669,689; ermine, \$500,641; patch fox, \$227,217; timber wolf, \$166,066—From *Commerce Reports*, May 19, 1921.

CANADA'S FUR-FARMING INDUSTRY

The raising of wild fur-bearing animals in captivity for their pelts has been carried on in Canada for many years, but it is only within the last few years that fur farming has become an established industry, according to a recently published official report on this subject.

In 1912 and 1913 the Dominion Commissioner of Conservation conducted an exhaustive inquiry into the history and possibilities of fur farming in Canada, and the resulting data, published in 1913 stimulated the industry. The fox has proved the most suited to domestication, although success has been attained in a few instances with mink, skunk and raccoons, and Karacule sheep. The earliest record of raising foxes in captivity comes from Prince Edward Island, where they have been raised for the past 40 years.

In 1919 the Dominion Bureau of Statistics began the annual collection of return of fur farms in Canada. The

returns show that 424 fox farms, 3 mink farms and 2 raccoon farms were in operation in Canada that year.

The fur bearing animals on the farms, at the end of the year of 1919 numbered 8,396, valued at \$3,201,388 comprising 7,181 silver foxes, value \$3,110,915; 852 patch foxes, value \$77,058; 275 red foxes, value \$11,345; 1 gray fox, value \$150; 1 blue fox, value \$120. There were born in captivity during the year 1919, 5,048 silver, 510 patch and 174 red foxes and 40 minks.

The number of silver pelts sold was 2,134, with a total value of \$501,973. This gives an average value of \$235. per pelt of silver fox. Patch-fox pelts sold numbered 319, value \$21,526 (average value \$28). One blue fox pelt was sold, value \$65; 56 mink, value \$1,030; and 2 raccoons, value \$30. The number of pelts sold in 1919 does not correspond with the number of animals killed for pelts, the sales for the year including some pelts carried over from the previous year, while the pelts of some animals killed in 1919 were not disposed of in that year.

Of the 429 farms reporting in 1919, 244 were operated by individuals, 87 partnerships, and 98 joint-stock companies.—From U. S. Govt. "Commerce Reports," May 21, 1921.

DO NOT FORGET

Keep the feeding and drinking dishes clean. Wash them at least *every* feeding (scald them if possible).

A fox must have some shade for its health, if not for its pelt.

Milk (pure) is the ideal summer food for the adult and pup foxes.

Let us hear from you.

Don't forget the new address.

QUESTIONS AND ANSWERS

This Department is open to our readers for the asking and answering of any questions connected directly or indirectly with fox and fur farming. It is not the intention of the Editor to answer these questions from the office of the publication, but rather to allow our readers to answer them from their wide and practical experience in the industry. Answers sent in care of the publication will be promptly forwarded to the one making the inquiry.

Question: How am I to use Glover's Worm Capsules and Vermifuge? What is the dose, what age am I to give it to the pups, and how is it administered? Address, "A. C. W." care American Fox and Fur Farmer.

Question: What proportion of horse meat is it wise to give in the daily feeding of foxes four months old? Address, "A. R. C.," care American Fox and Fur Farmer.

Taming Foxes

By PERRY A. COLE

Supt. Adirondack Mountain Silver Black Fox Co.
Remsen, N. Y.

It is my opinion that one of the most important things in fox breeding is to have the females as tame as possible. This is important for several reasons, the female will have confidence in the caretaker, and this will allow him to look after the pups as soon as they are born; also the female won't put so much fear into the pups after they get out around, by sending the pups into the den whenever the caretaker comes around. This has much to do with the disposition of the pups when they get fully grown. It is also much easier to handle the full grown foxes if they have confidence in the handler.

A female fox tames much easier than a male. The way I go about taming a fox is as follows: Have the fox so it cannot get out of sight. I never make a quick motion or speak in a sharp voice while in the yard, although I talk to them as though they are human. I have also found out that if you look them directly in the eye they will get as far from you as possible. I always have a few seedless raisins with me and when I go by a fox I am taming I will give two or three to her. Sometimes it takes as much as ten minutes to get a fox to take a raisin out of my fingers. In most every case this can be done by having enough patience.

Following is a little example of father and mother and four pups this spring: The female is so tame she will eat raisins out of a stranger's hand and I feed her out of the middle of my hand. The male is more or less wild. When I would go near the pair of foxes the male would give his little bark and in the den would go all the pups, and immediately the female would go to the entrance of the den and call the pups out again. This would vex the male very much, but the female is boss in puppy time.

With proper feeding and a caretaker who likes animals and a ranch stocked with foxes out of tame females, and good judgment, means good success in the fox business.

A merchant in a near-by town—a non-advertiser—ran an ad in his home paper recently. Two days later his store was broken into and robbed. Evidently people had just learned he was in town.

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Notes of the National Silver Fox Breeders' Association

By J. E. SMITH, Secretary

The question of holding another show this fall has been left with a committee of five, which will begin to make plans in the near future.

Questionnaires have been sent to all the members to find out the consensus of opinion regarding the question. In all but one or two cases the members are in favor of holding another exhibition. It appears now that there will be about three or four times as many foxes shown this year as last. Some of the members want to show as high as 40 foxes. If there are too many entries it may be necessary to place a limit on the number each exhibitor is allowed to show.

Many more would have shown last year had they not been discouraged by certain parties.

Many of the western breeders are in favor of a show being held in Chicago this year but it is believed that it will be impracticable to do so before another year. It would be quite an undertaking to make such a venture when we are so young in the business.

The secretary, J. E. Smith, has just returned from a trip west thru Wisconsin and Minnesota. The trip was made following an invitation extended to him by Mr. Arthur Schleicher, Mgr., of the Rest Island Silver Fox Co., Lake City, Minn.

It was a big surprise to learn the extent to which the industry has developed in that part of the country.

A more beautiful and ideal location for a fox ranch than that of the Rest Island Co. could hardly be imagined. The island contains 220 acres all of which is owned by the Company. The ranch has all the modern equipment necessary for taking care of the 110 pairs of old foxes and the 325 pups. The quality of the foxes compares very favorably with any ranch so far visited. At this time of year it is very hard to tell what they will look like when the fur is prime, but the puppies are certainly a fine looking bunch of healthy animals. One could write a book on Mr. Schleicher's career in the fox business, his faith in it thru thick and thin, and his ranch and success today. It would be well worth while for anyone to visit Lake City and take in the Rest Island Ranch, as they would get some ideas on feeding, breeding, etc., that would open their eyes.

Mr. Blake's Ranch at Millville, Minn., was built and formerly owned by Mr. Schleicher. This ranch is well located among the hills and has very good drainage. Mr. Blake had good success this year but has sold his ranch to a man from Illinois.

The Red Wing Silver Fox Co., Red Wing, Minn., was promoted by Mr. Schleicher, who is also Manager. This location is an ideal one. It is situated in an oak grove, between the hills, along the Mississippi. The soil is quite light and very well drained. The buildings are on a concrete, state highway, between Chicago and St. Paul. The officers and Directors are very prosperous business men of Red Wing, and are very much enthused over the business.

The Clover Frodin Ranch, located just out of St. Paul, looked more like Michigan ranches, due to the fact that Mr. Frodin purchased his foxes and got his ideas from Michigan breeders. This ranch seems to be very well located in regard to drainage.

The Norwood Company, organized by Schleicher, who

is President of the Company, is constructed the same as the other ranches built by Schleicher, who also furnished the foxes. The location is not so good in the way of advertising, but they are raising foxes, which after all is the main thing. The selling is merely incidental. Mr. Herman Brueschoof, caretaker and manager has made application for membership in the Association.

Mr. J. S. Chastek, the Blue Fox Man, of Glencoe, Minn., is pretty well known. His blue foxes produced three litters of 10 pups and one litter of 12. All but three of the 12 litter, however, were drowned in a heavy thunder shower recently. His silvers are looking fine for this time of year. He is planning on taking some prizes at the show this fall.

Mr. Beyreis of Wausau, Wis., is doing things on his ranch. He is constructing a number of new pens, using steel pipes, sunk in cement, for his posts. It makes a very neat piece of work. King of Wausau and his other show foxes look a little different than they did at Muskegon, but one can see, even at this season, that there is quality there. The fur around the neck is a clear blue black and it stands out as it should. Mr. Beyreis says he has a fox that will beat King of Wausau and that he will have him at the show this fall. The Wausau ranch is located in the open, but there is plenty of room underneath the kennels where the foxes can find shade. He believes in letting the sun do his disinfecting. One cannot say that the sun has faded his foxes' fur any.

The Marathon Silver Fox Co., Marathon, Wisconsin, is not very far from Wausau. This company purchased their stock from the Fromm Brothers at Hamburg. The original Fromm stock came from the wild, although they have mixed some standard blood with it at various times. Although this Company has some exceptionally fine looking animals, they are not sure whether they will always breed true to color or not. The Marathon Company had some red and cross pups in their litters this year from Silver Black parents purchased from the Fromm Brothers. There is some Alaskan blood in both the Marathon and Fromm Brothers foxes, and it shows up very plainly in the puppies, some of them being as large now as the average standard adult. The Marathon Ranch is very well constructed and their increase this year was good in spite of the fact that their caretaker was inexperienced. He is a worker, however, and is very much interested. These people are bound to make a success because they are going to cull out all but their very best foxes and get in some new blood.

I was very much impressed with the enthusiasm shown by the Lemmer Brothers and Mr. Vedder. Mr. Vedder, President of the Company, drove me out to the two Fromm Ranches near Hamburg. The Fromm Brothers are following methods that I have never seen anywhere, but they are having very good success. They have been in the business ever since 1908. They have no carpet in the floor of the pens, and as a result the foxes dig a great deal. They have pens about 50x60 feet and have the stumps, brush and everything as near the natural state as possible. As mentioned before, their foxes are from the wilds of Wisconsin, Minnesota and Alaska, but they have imported a number of standard bred foxes to cross with the others. They usually breed true to color now, but occasionally a cross or red crops

out. Their foxes are all very healthy and active. The puppies in some cases are hard to distinguish from the adults.

The Fromm Brothers claim that they realize about as much from their Ginseng beds as from their foxes. They now have about twenty acres of this plant under cover.

Most of the breeders out west are planning to attend the show this fall and bring some prize winners. It is certainly worth any breeder's time and money to get together with men from all parts of the country, exchange ideas and gain what information they can from the other fellow.

Mr. Edward A. Toll, of Ripon, Wisconsin, spent a few days in Muskegon recently, looking over the ranches in that vicinity. Mr. Toll purchased his foxes from the Wausau ranch.

Mr. Schleicher says that he intends to keep this office busy this fall making out registration papers for his 420 pups raised this year. He also says that he is going to keep nothing but Advanced Registry stock on his ranch. He can cull out all those that fall below Advanced Registry requirements and still have one of the largest ranches on the Continent. We are glad to see Mr. Schleicher make this start, and we hope others will soon follow his example.

PIONEERS AND REGISTRATION

(By George A. Brackett, Boston, Mass.)

The American Fox Breeders Association was organized and incorporated under the laws of the Commonwealth of Massachusetts on March 6, 1918 by men best fitted for such an undertaking. The officers are President, two Vice-Presidents, Treasurer, Governor and Secretary; (the Secretary being the only paid member). This Association was founded by a coterie of men who saw that the live fox industry in the years to come would grow and thrive not alone for its being a source of revenue and income for the ones who actively engaged in the pursuit of the breeding of Silver Black Foxes, but as a means whereby the men or women of ordinary means and energy, might also secure the same personal satisfaction and pleasure as could be derived from the breeding of dogs, cattle, horses, poultry, or in fact any live stock.

The lover of animal life will be amply repaid for his outlay in money, when expended within the means of his purse, by the pleasure and interest to be had in watching the antics and ways of the fox while at play or exercising. If you do not know it for yourself, ask any fox rancher if it is not true that he enjoys and has a really truly laugh when his foxes are at play. The fox does play a good proportion of his life if she or he is in good condition.

These pioneers of the American Fox Breeders Association, can see, as I have said before, that in the years to come, the breeding of the live Silver Black Fox will become a very large industry, and that fact is beginning to be realized, for during the year 1920, about three million dollars worth of live animals changed hands.

These pioneers of the Association (at least one of the Governors has been raising foxes of different varieties for the past sixteen years, and another member has handled pelts of both the wild and ranch foxes for twenty years or more) saw that there must be more of standard drawn up whereby the breeding and perfecting of the Silver Black Fox could be continued along the line leading to the eventually hoped for one hundred percent.

These pioneers of the American Fox Breeding Association were composed of men who were already well fitted to perform the task put upon them. Here was a brand new phase of live stock, taken from the wilderness only a few

generations removed from savagery and isolation from mankind, and for which a standard of perfection (not of values) must be framed. Had these gentlemen not had the brain power, the education and finances, the experience and the love of the subject at heart, and had they not been eminently fitted for the work, perhaps it would have been many years to come before a suitable standard of perfection would have been evolved.

Though the standard as now used by the American Fox Breeders Association is not considered to be absolutely perfect, it most surely contains all the valuable acquires and latent qualities of a standard of perfection such as will be used for all time.

Every breeder of Silver Black Foxes can thank the pioneers who organized the American Fox Breeders Association, for creating a standard of perfection for silver black foxes, thus enabling foxes to be registered from a point of standard. *Nothing in the breeding and raising of silver black foxes can be of more importance than registration.*

If for nothing else than to have the safety and facility in protecting both the buyer and seller of live foxes, should this registration be attended to; but there are other considerations equally as valuable about the registration of live foxes. It provides a lasting record on the books of the Association, and from this record (accessible at any time) can be traced the ancestry type, not only of the fox itself, but its parents for three generations, thus enabling the breeder to work out to his own advantage, the points of coloration, texture, reproduction qualities and other points which he most desires, and he is enabled to do this without having to depend on haphazard guess work.

Again, for the beginner, if he purchases a fox which is not registered, he is taking unnecessary chances. He has no data or recourse of any character upon which to start on breeding young foxes. All luck and all chances of failure ahead of him, whereas if the man or woman purchases a pair of foxes that carry with them papers showing that they have been registered the person who is just starting or the experienced rancher, knows exactly what the rating of the animal is and also its family history for generations back. As I have already referred previously in this article about the standard and of its not as yet having been wholly perfected, I will say this much, that it has been changed at different times, until now under the method of actually giving general appearance a number of points in the scoring, (where heretofore it appeared only as instructions to the judge).

The revised standard of 1921 as now used by the American Fox Breeders Association will not enable a poor grade of live fox to secure advanced registration, unless the animal is strictly a high type of fox, it cannot secure the necessary eighty-five points that gives it the necessary and all important advanced registration papers and rating on the records of the American Fox Breeders Association of which said record tells the whole story.

A fox may be registered with the Association, but the advanced registration cannot be secured unless the fox can score the all important eighty-five points under the revised standard which show at once that the fox is O. K. both in body and pelt.

To illustrate that the pioneers of the American Fox Breeders Association were broad minded in their view, it was their idea first, last and above all, to do an act for the best interest of the industry as a whole and not to favor any one type or pattern of fox, only as they honestly believe their judgment showed them, should be the true standard of the Silver Black Fox.

In concluding this first article on the Pioneers of Stand-

ardization of the Silver Black live fox, I will again say, *register every fox you own and join the Association.* It is not a money making deal, only for yourself.

You may register your foxes even if you are not a member of the Association, although you lose many advantages if you own Silver Black Foxes and do not belong to the Association, which is conducted solely for the benefit of all.

REMEMBER REGISTRATION! A fox must have at least three direct generations of silver black parentage back of it to become registered on the records of the American Fox Breeding Association. A fox to secure advanced registration must prove its breeding as in ordinary registration, but must be able to secure eighty-five points under the revised 1921 standard as framed and used by the American Fox Breeders Association. To secure eighty-five points under 1921 Standards, means that a fox is surely the high type of live fox in existence today. This is the kind of fox which brings the high price in open market, both as a pelt or breeding animal, and is among the prize winners at the live fox shows.

FROM OUR MAIL BOX

A Few Letters Selected at Random from Our Mail—Evidently Our Efforts are Appreciated

Ayer, Mass., May 23, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

Congratulations on your efforts for new magazine. Hope you will be impartial and successful. Enclosed please find my check for \$3.00 for one years subscription.

Yours very truly,

J. HOWARD PILLMAN.

Newport, N. Y., June 15, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

It truly seems to me as if this magazine would fill a want in the fox industry, and we are very glad of the opportunity to place the "Adirondack" in the leading issue.

I hope the publication will be a success and that we will get leads from the advertisement.

Very truly yours,

ADIRONDACK MT. SILVER BLACK FOX CO., INC.

J. T. Wooster, Jr., Secretary.

South Ryegate, Vt., June 15, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I think a publication strictly in the interests of the American fox breeder is what we all need, and I heartily approve of your efforts and will try to help you in my small way.

Yours truly,

GEORGE S. TUTTLE.

Muskegon, Mich., June 3, 1921.

American Fox and Fur Farmer
Utica, New York

We wish to congratulate you on your undertaking and feel sure it will mean much to American breeders of foxes.

Yours truly,

GREAT LAKES SILVER BLACK FOX COMPANY.

J. Capano, President.

Fayetteville, N. Y., March 31, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

We will be glad to support your venture, as we realize that there is pressing need for a progressive fur farm journal which is not tied up to any ranch promotion or animals sales propaganda.

Yours very truly,

AMERICAN KARAKUL FUR SHEEP COMPANY, INC.

Boston, Mass., May 4, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I wish you all kinds of success with your new publication and shall await receipt of the first copy with great interest.

Yours very truly,

A. H. C. MITCHELL,

Secretary, American Fox Breeders Association.

Fur Farming as an Agricultural Pursuit

By C. W. LEISTER

Instructor in Ornithology, Cornell University
Ithaca, New York

Without a doubt, fur farming has a future. All of our domestic animals have been derived from wild stock and there is no particular reason why many of our fur-bearing animals cannot be domesticated in the same way and raised commercially for their furs. The industry is in its infancy, however, and much remains to be done before we can raise some of the more important animals. Enough is known about the habits and requirements of several species to make it possible to raise them with a fair degree of success, sufficient to repay the breeder, and not considering the pleasure he derives from the effort.

There is no reason why the farmers of this state should not take a greater interest in fur-farming than they do at present. Foxes, minks and skunks have been domesticated and many concerns and individuals have been raising them successfully in northern New York. As a side line, especially, fur-farming should prove a source of income to the farmer. The work involved is not difficult nor does the time which is necessary to properly care for the animals interfere with farm work. It fits in well with the general routine.

In making a choice of the animal to be raised, consideration must be given to the climate, nature of the locality, food supply, and capital to be invested. All of these factors are well taken up in privately published articles on fur-farming and also in government publications. Lack of knowledge concerning the needs of the animals has heretofore been one of the principal drawbacks to raising them successfully. No one should enter the business without first becoming acquainted with the available literature dealing with the subject. If one takes up fur-farming knowing what difficulties are likely to be met with and the remedies for each, success is, of course, much more likely to result than if he knew nothing concerning the enterprise.

I am sure that in the years to come, fur-farming will be practiced more and more by the farmer, and with ever increasing success. Some will find themselves not fitted to carry on the work but that is always the case with all kinds of enterprises.

THE AMERICAN RABBIT INDUSTRY

By FRED H. BOHRER

Licensed Registrar and Judge, Utica, N. Y.

For the past few years interest in pure-bred rabbits has taken on added life. It can be safely stated that in these past four or five years more and better rabbits were raised than at any other time.

Whether the enthusiasm will embed itself and become staple is a question that remains to be seen. In many quarters the belief is that the fad has about hit its height, again one hears that the industry has come to stay and will gradually grow into one of our largest branches of livestock farming.

Be it as it may, there is no question but what the commercial value of standard bred rabbit furs will always be a paying investment. In different parts of the country large and well organized establishments are in operation breeding many different varieties of rabbits principally for their fur value.

It is needless to go into detail and describe to the readers the many different imitations of fur that can be made out of these rabbit skins, but it was once stated by a well known furrier that about nine out of every ten persons wearing furs, and feeling that they had the real thing, were wearing processed rabbit fur. This statement seems rather too gross to be a fact, but it might be well, however, to have an expert explain the methods that are used, in dyeing, clipping of rabbit furs.

It is estimated that the greater number of breeders within the past few years, were breeding rabbits more out of fancy than for the utility or commercial value. One would only have to walk through any of our large poultry shows throughout the country, and about one-half of the exhibits would be rabbits. Naturally these exhibits created new recruits, and it was common to see animals change hands at figures running into three figures and sometimes four.

These prices were paid for the purpose of adding new blood, and it is doubtful if the fur value on these animals would be any greater than a specimen of lesser lineage. To be sure the high standard attained by these animals had a tendency to bring about a better fur condition but as before stated the greater share of the breeders was not particularly interested in the hide any farther than it was up to standard requirements as to color and show condition.

This fault if it may be called one, has to a great extent been remedied by the offering of special prizes and inducements for specimens showing the best possibilities of being a fur producer, and in this respect the writer has seen a marked difference in the condition of the coats, now breeders are paying attention to fur side and not letting type only run away with their fancies.

With the advent of exhibits of hides or fur pieces in connection with the shows, many breeders became proficient in the art of tanning rabbit hides, and with each breeder as he progressed he developed new secrets or formulas which he considered just a bit better than his neighbors, however the formula which the writer will give here is an old one, and perhaps readily recognized by many. It has proven to be a very good one, one which many of the leading breeders have stuck to.

It must be understood that only hides taken from healthy animals are to be used for tanning purposes, green skins with fur on, soft and solid.

Soak in clean water for several hours. If dry skins are used soak and soften in ten gallons of clean water, to which add the following: Four ounces of borax, one ounce of caustic seeds. This makes an antiseptic wash. Soaking to be done as quickly as possible. When soft the skins are fleshed by removing fat and flesh. The skins are next washed in a warm water solution of soft soap, which cleans the fur from grease. They are now ready to be tanned.

The method consists of applying to the flesh of the skin the following mixture: Aluminum sulphate, five pounds; common salt, five pounds; gambier, two pounds; rye flour, five-sixths of a pound, and water ten gallons. Dissolve aluminum sulphate and salt in a small quantity of water, add the gambier to hot water until dissolved and mix two solutions together. Make rye flour into thin paste. To this paste add one-half pound of glycerine or olive oil, then add alum, salt and gambier solution to the paste. The paste will be applied to the flesh side of the skin with a brush. Paste to be one-eighth of an inch thick.

Place the hides flesh to flesh, and after lying together for about forty-eight hours or longer, if not properly tanned at the end of that time then hang up for drying hot in the sun. For making a smooth pliable hide, knead and stretch well around a smooth object.

It has been proven that rabbits raised in outdoor hutches, regardless of climatic conditions are more healthy, have better fur and are easier to raise.

Space does not permit to describe the different breeds and varieties, but it might be well to mention the more popular sorts which have a large following. The big Flemish Giant is without a doubt carrying the honors at present for popularity, Belgian Hares and New Zealand running close. The Dutch and Himalaya as well as the Angora also have their followers. American Blues as well as the Havanas are making fast progress and bid well to become leaders.

In sections there is a good demand for rabbit meat and many prefer rabbit to chicken. It has been stated that in many instances the so-called canned chicken and the cheaper grades of tuna fish are nothing more than rabbit meat which has been prepared in tuna fish oil.

One great drawback to the industry comes from breeders refusing to kill off a part of the young for meat stock, many breeders thinking that all of the young in a litter will grow into exhibition stock. Much work is yet to be done in order to educate the public to eat rabbit meat.

Cull closely, kill off the poor stock for meat, and develop the fur quality and the rabbit industry will grow bigger and better.

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AMERICAN FOX AND FUR FARMER

The Animal Parasites of Foxes, with Special Reference to Hookworms

By WILLIAM RILEY and C. P. FITCH
University of Minnesota, St. Paul, Minn.

From "Journal of the American Veterinary Medical Asso.
June, 1921

Until recently the study of the parasites of foxes would have been regarded as a useless even though harmless diversion. They were not looked upon as of economic importance, and when considered at all were studied from the viewpoint of the systematist. Now, with the awakened interest in fur farming, and with the increasing value of skins, the condition is rapidly changing. When a choice fur may bring over a thousand dollars, and when breeding animals are valued in the thousands of dollars, a fox may be worth many times the value of a fine horse or cow. Any disease, parasitic or otherwise, which threatens the life of the animal, or which even effects deleteriously the condition of its fur, becomes of prime importance to the fur farmer.

It is a general assumption of those interested in the industry that foxes are remarkably free from disease. Whether this be true or not regarding wild foxes, we have not reliable data. Certainly there is no reason to suppose that it will prove to be so for the domesticated ones. Infections which in nature are scattered over wide areas become concentrated under conditions of confinement. The result is soil contamination, which sooner or later means trouble. The danger is especially grave in the case of infections with protozoan or nematode parasites, which do not require an intermediate host to complete their development. In such cases the cysts, or eggs, or larvae, may remain for months or even for years in the soil, capable of causing fatal epizootics when the conditions are favorable.

In November, 1917, there was brought to the Veterinary Division of the University of Minnesota a silver fox which had died from some unknown cause. The animal was in fairly good state of preservation, and examination showed large numbers of hookworms in the intestine. These were identified by Dr. B. H. Ransom as *Uncinaria polaris* Looss, 1911. The abundance of these worms in the first case examined and subsequent studies leave no room for question that they were the cause of the death of the fox. Later in November we examined feces from a number of foxes from this farm, with the following results: No. 1, large numbers of hookworm ova; No. 2, few hookworm ova; No. 3, very few hookworm ova; No. 4, no ova found; No. 5, many ascarid ova and a very few hookworm ova; No. 6, many ascarid ova; No. 7, few hookworm ova.

Subsequently a study of several lots of feces from three different fox farms in the State and examination of animals showed the presence of these parasites.

Available data regarding their presence elsewhere and the known facts concerning the source and distribution of breeding stock make it evident that the hookworm is widely distributed and a potential source of serious loss under unsanitary conditions.



LIEUTENANT FRANK G. ASHBROOK

The above is a splendid photograph of Lieutenant Frank G. Ashbrook, who was recently appointed by the Government to thoroughly investigate the Silver Black Fox industry. Lieutenant Ashbrook is now employed in making an investigation of problems involved in the rearing of foxes. This work is being done under the fur farming project inaugurated by the United States Department of Agriculture and in accordance with the plans of the Bureau of Biological Survey of that Department to secure information of value along this line and to contribute to the success of the fur farming industry through experimental investigations.

Lieutenant Ashbrook's assignment for the present is primarily that of investigating the management problems, to obtain information which may be analyzed and serve as a basis for recommendations as to procedure, which would result in improvement in practice and increased profits through the rearing of fur-bearing animals in captivity.

"The American Fox and Fur Farmer" expect in the near future to publish an article setting forth the results of the investigations now being made by Lieutenant Ashbrook. We are pleased to present him to our readers and believe that the United States Department of Agriculture have acted wisely in selecting this type of a man for this important mission.

Vol. I

AUGUST, 1921

No. 2

AMERICAN FOX and FUR FARMER

AN AMERICAN
PUBLICATION
DEVOTED EX-
CLUSIVELY TO



THE SILVER
BLACK FOX
INDUSTRY &
FUR FARMING



"Diamond", Reg. No. 3299, P. O. 1. One of the foundation males of The Green Mountain
Silver Black Fox Company, South Ryegate, Vermont

\$3.00 Per Year

35c Per Copy

Mr. Prospective Fox Buyer:

Stop and consider if the following facts may be of any advantage to you.

We Are Offering ADVANCED REGISTERED PUPS

from Advanced Registered Parents and
Advanced Registered Grandparents
(Indicating the most rigid selective breeding)

Our foundation stock was personally selected, from some of the best ranches on Prince Edward Island, by our caretaker—a practical fox man who has had twenty-four years experience handling foxes, and more than twenty years a trapper and fur buyer—a man who knows fur quality and who made fur quality the first consideration, in selecting foundation stock.

Our foxes are prolific—in eleven years breeding, we have only twice fallen below 100% increase—(counting every adult on the ranch).

This season we had seventy-four pups from twenty pairs of breeders—two litters of six, nine litters of five three litters of four, one of three and one of two.

Eighteen of These Breeders Were Pups of Last Season--Only One Year Old

We have never had a sick or diseased fox on the ranch, and have never had a deformed, crooked legged pup.

We furnish registration certificates at time of delivery. Pups should not be inspected for Advanced Registry until November.

We were the originators, and first to suggest Advanced Registry as a means of protecting the beginner from inferior stock.

Our prices are reasonable, based on actual fur value.

FIRST SELECTIONS FROM THE RANCH--Pups \$2,000.00 Per Pair

None better in existence. Others at lower prices, according to their individual merits.

The cut on front cover is one of our foundation sires, "Diamond" scoring 92 $\frac{3}{8}$ points when several weeks past prime.

We now have on the ranch about forty of his descendants, all equally as good or better than this sire. Every one scoring well above the 90 mark.

If you are interested in real Quality Stock and at reasonable prices, we should be pleased to have you visit the ranch, and personally inspect any fox.

Or we will try to arrange for our representative to call on you during September.

Green Mountain Silver-Black Fox Co.

SOUTH RYEGATE, VERMONT

Geo. S. Tuttle, Caretaker and Manager

In Our American Fox Farms

I am breeding the best foxes we ever raised

**All The Leading Strains, Tuplin, Dalton, Oulton
And The Improved Silver Fox**

Procured by adding new blood. Also pure Alaskas, bred by ourselves from selected stock. Four large farms to select from, situated at Alpine, Route 1, Mich., Lakewood, Mich., Traverse City, Route 4, Mich., and at Houghton, Box 104, Mich.

Get our twenty years experience contained in our booklet. Treats of origin, breeding, raising of foxes, diseases, etc. Valuable to all fox men. Price \$1.50. Thousands sold.

One man says: "Wish I had had your book years ago; would have saved \$1,000."

Another says: "The best thing I have ever seen on fox farming."

Another says: "Just the information I have been looking for for years."

Another says: "Send me four more copies. Want them for my friends."

EVERY ONE SHOULD HAVE ONE

Write for prices on 1921 puppies, delivered October 1, 1921, or kept and ranched for you for one year. Everything guaranteed. Every customer, a satisfied one. Our guarantee goes with our foxes.

FRANK F. TUPLIN, R. F. D. 1, Alpine, Michigan

Do You Realize that at the Muskegon Show

15 First Prizes, 14 Second Prizes and 10 Third Prizes were awarded to foxes that scored less points than our lowest scoring **THIRD PRIZE** Winner at the Boston Show?

Do You Realize that at the Boston Show

3 First Prizes, 5 Second Prizes and 5 Third Prizes were awarded to foxes that scored lower than our lowest scoring **Third Prize** Winner at the Boston Show?

We entered 10 foxes at the last Boston Show and won 7 ribbons, including 1 sweepstake prize, with an average score of 93-1/8. Some record, considering the fact that we won these prizes in the classes where the greatest competition took place. Our 10 Foxes scored as follows: 94%, 93%, 93%, 92%, 92%, 92%, 92%, 91%, 91%, 90%. These figures illustrate the uniform excellence of the "SHEFFIELD" foxes.

More size in foxes must be secondary to that rich blue black color and fine silky texture of fur so much sought after but so seldom found which are the distinguishing features of all "SHEFFIELD" foxes. We have Blacks, Extra Dark Silvers, and Dark Silvers and can give you whichever coloring you prefer. Complete plans for ranch, pens and dens sent on request.

SHEFFIELD SILVER BLACK FOX CO.

WILFRED H. LEARNED, Manager.

Northampton, Mass.



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Subscription Blank will be found on page 31

ADVERTISING RATES ON PAGE 32

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On account of a ruling in the Post-office Department, no subscriptions can be accepted, or mailed, unless paid in advance. Please see, therefore, that your subscription is kept paid up. Please notify promptly of change in address or firm.

American Fox and Fur Farmer

Vol. I

AUGUST, 1921

No. 12

PUBLISHED MONTHLY, 406 ARCADE BUILDING, UTICA, N. Y.—PHONE 1778-W
 An American Publication Devoted Exclusively to the Silver Black Fox Industry and Fur Farming

WARD B. EDWARDS, *Editor*

PUBLISHED BY "AMERICAN FOX AND FUR FARMER"

OUR THANKS ARE EXTENDED

We extend our grateful thanks for the several hundred letters received at this office since the July issue was mailed, congratulating us on the first issue of the "AMERICAN FOX AND FUR FARMER." We may be pardoned for the pride we feel. We are not satisfied, however, but will continue to make this publication one of which every fox rancher and fur farmer may be proud. We keenly appreciate the flood of paid in advance subscriptions which have come to us during the past three weeks, an evidence, to our mind, that the American fox rancher and fur farmer appreciates an American publication. One State alone produced 68 subscriptions, and they are still coming.

We again pledge our allegiance to the American breeder of Silver Black Foxes and the American fur farmer. The industry in the United States is firmly established. All it needs is a strong pull and a long pull all together—a square deal to all.

QUARANTINE REGULATIONS

We are advised that the quarantine regulations on Silver Black Foxes, made effective by the United States Department of Agriculture, are working splendidly, and that the results which are bound to follow the rigid enforcement which is promised will benefit in every way the Silver Black Fox industry.

ARTICLES OF INTEREST

Our July issue contained several articles highly interesting and instructive to the fox rancher and fur farmer, and from the large number of requests for sample copies that have come to us, we are led to believe that these articles have attracted a lot of attention all over the United States. We promise more of the same kind in every issue of the "AMERICAN FOX AND FUR FARMER."

Perhaps you, Mr. Fur Farmer, are withholding some information that would prove of inestimable value to your brother fur farmer. Don't do it any longer. Sit down and write it out and send it in and we will gladly use it in our columns. If you don't feel like writing an article, write us a letter and in your own words tell us just what you are doing. It may be just what a brother fox rancher may want to know.

OUR ADVERTISERS

To our rapidly increasing list of subscribers we desire to say that we have absolute confidence in our advertisers.

We will not knowingly accept the advertisement of any but the most reputable firms, and any advertiser found not dealing on the square will not be sold space in this publication; therefore, we do not hesitate to recommend to our readers all of the firms found advertising in our columns. Patronize them with a feeling that you will get a square deal.

NO FOREIGN ADVERTISING ACCEPTED

We must again announce that no foreign advertising will be accepted by this publication. Several advertising contracts from foreign breeders have been offered but we have, consistent with our announced policy, refused them all. We shall continue to do this. This does not mean that we have any quarrel with the foreign breeder. It does mean, however, that our policy is fixed and will be strictly adhered to. "THE AMERICAN FOX AND FUR FARMER" is an American publication for the American fox rancher and fur farmer. We pin our faith to them. We know they will support this publication. They are proving our faith in them daily. Every mail brings us subscriptions and words of encouragement. Read a few of these letters in this issue. We only wish we could publish them all.

COUNTRY'S FUR INDUSTRY ASSUMING LARGE PROPORTIONS

The United States leads the world in the production and use of furs. Great industries, which involve large amounts of capital and employ thousands of persons, have been built up and established in this country. In 1920 the sale of furs amounted to practically \$100,000,000, and, according to specialists of the Biological Survey, United States Department of Agriculture, the gross business in connection with the import, export, and handling of domestic furs in New York City alone during 1919 amounted to \$375,000,000.

During the time that these great industries were developing, the heavy market demands for furs and the high prices prevailing, stimulated activity on the part of trappers to such an extent that especially in the past decade there has been a marked decrease in the supply of wild fur-bearing animals. The recent depression in the fur market is thought to be a transient feature of readjustment attending a return of markets to normal conditions.

Several kinds of wild fur bearers have been successfully reared in captivity on fur farms. The largest investments at present are being made in connection with the rearing of silver-black foxes, and it is here that the greatest profits have been realized during recent years.

Fur Market Report

By JAMES S. HANSON
New York

During June, July and the first part of August the Fur trade does not expect much activity. Summer furs have been marketed earlier and Fall stocks are in cold storage.

But what a difference from the same period last year. The industrial depression had started in April and demand for furs seemed actually to shrivel up during the hot summer months, and there seemed no encouragement even with the Fall season starting in. Goods had no real staple value, it was just a question how much less to take on each sale. There were many large failures, fortunes were wiped out and the Fur trade faced a hard problem to make a fresh start with the new catch coming in from November, 1920, on. Gradually conditions mended, real values were again established and the conservative element prepared and got in line and took all offerings at prices which left a good margin of profit to all handlers of American raw furs from the trapper to the dealer and restored confidence and brought the manufacturers again into the field. A conservative policy prevailed, speculation and overbuying were not indulged in, and every parcel of furs sold to meet actual requirements.

The results of the London spring sales especially in fancy articles, such as marten, Hudson Bay sables and silver foxes were very encouraging, silvers realizing 25 per cent higher prices than in December and January, 1920, 1921.

German buyers were the large factor at this Spring sales in London, buying with spot cash, gold.

As every other line of industry is on the mend, it is safe to say, that furs will be largely used this coming Fall and I expect to see an account of the early conservatism—free buying—and that means a stiffening of prices.

To those who are interested in silver fox pelts to be marketed next winter I will say, that the demand will be for high grade pelts from one-quarter to one-half silver. I don't believe that the three-quarter silver pelt will bring as high a price as the others just mentioned.

Russia before the war was the largest consumer of silver fox pelts, either directly or by way of Paris Fursturs.

Should that unfortunate and commercially devastated country be a buying factor once more—oh, well, pelts would be worth more than breeders to-day.

But then, poor Russia. Where there is Life, there is Hope, therefore let us hope.

A NEW FOX PUBLICATION

From "The National Fancier," York, Pa.

The first issue of "AMERICAN FOX AND FUR FARMER" an American publication for the American fox breeder and fur farmer, made its initial appearance on July 10th.

This issue contained original articles by Prof. W. L. Chandler of the Michigan State Agricultural College, Dr. Samuel F. Wadsworth, a noted fox breeder of New England, Robert Thomas Moore, one of the original fox men of the United States, located at Onawa, Maine, and several other fox breeders of national reputation.

It also contained a letter from Dr. Nelson, Chief of the

Bureau of Biological Survey, United States Department of Agriculture.

The publishers of "AMERICAN FOX AND FUR FARMER" believe that the fox industry in the United States has reached a point where it can and will support an American publication. The subscription price of this publication is \$3.00 per year. Their advertisement will be found in another column.

ALASKA'S DEER INDUSTRY

Dr. Nelson of Biological Survey Tells of Development Plans

Dr. E. W. Nelson, chief of the United States Bureau of Biological Survey, in a recent bulletin of the American Game Protective Association states that in connection with its plans for developing the reindeer industry in Alaska, the Biological Survey is arranging to obtain young bulls of the large woodland caribou to use in grading up the size of the reindeer, the dressed carcasses of which now average only about one hundred and fifty pounds each. The large size of the woodland caribou should be of distinct advantage, not only in increasing the vigor of the reindeer herds, but in adding to the size of the animals.

The bulletin says the Sitka blacktail is the only typical deer in Alaska. Its original home extends from near Icy Straits southeasterly through the great archipelago of the Alaskan Panhandle. There in many places under favorable conditions it has often become exceedingly abundant. Far to the westward it has been successfully introduced in Kodiak and adjacent islands and on certain islands in Prince William Sound. Unfortunately for these deer, the heavy Winter snows on the mountainous islands they occupy commonly force them down near the shore, where they often suffer severely for lack of food and become easy prey for wolves and hunters. Even in Summer when numerous they are often found near shore, where they are easily killed by day or night. Many reports are current that wolves destroy large numbers in Winter, while the Indians kill them throughout the year, in some places slaughtering them in a most wasteful manner.

Another serious menace to their conservation is the hunting done by crews of fishing boats which operate along the coast and sometimes kill these deer in large numbers. At times many deer carcasses have been carried southward on these boats to the United States. To prevent the killing of these animals as far as possible by men from fishing boats, the Secretary of Agriculture recently established a new open season to extend from September 1 to October 15, the opening date being at a time when most of the boats have left Alaskan waters. This change should be of marked assistance in enforcing the law. As is the case in connection with the protection of other game animals of the Territory, the most serious present drawback is the lack of money to employ sufficient wardens.

In Alaska mountain goats appear mainly along the coastal ranges. They are found as far west as the Kenai Peninsula and inland to the mountains of the Copper River and the slopes of the Nutzotin Range. While numerous in some places, they do not constitute one of the generally distributed big-game animals of the Territory, and as their flesh is less palatable than that of the other big game, they are less hunted. These saving features may assist in carrying mountain goats through some of the dangers which may be very serious for their more desirable relatives. In some localities they appear on the same ranges with mountain sheep, but as a rule they live in mountains which are more foggy and rainy than those most favorable to sheep.

Notes of the National Silver Fox Breeders' Association

By J. E. SMITH, Secretary

The following letter contains very complete information regarding the quarantine placed on silver foxes June 1:

Washington, D. C., July 8, 1921.

Mr. J. E. Smith, Muskegon, Mich.

Dear Sir:—

This will acknowledge the receipt of your letter of June 29, relative to the importation of foxes. That portion of your letter to a proposed tariff on foxes has been referred to the Bureau of Biological Survey of this Department and it is probable that such Bureau will reply to your inquiry.

You will find enclosed herewith a copy of B. A. I. Order 266 with Amendment 7, to same. As indicated in this Amendment, permits from this Department must be procured for all foxes to be offered for importation into the United States and such animals must be entered through designated ports which are Boston, Mass., New York, Rouses Point, N. Y., Calais, Maine, Pembina, N. D., and Seattle, Wash.

Feed, attendants and all quarantine expenses will be defrayed by the importer of the foxes. This includes the furnishing of a quarantine structure. The place for its erection, its arrangement and equipment will be subject to the approval of the Bureau inspector at the port of entry. The building or enclosure for the quarantine of the animals should have a good cement floor in order that it may be covered with clean earth and that such earth may be removed and replaced by clean fresh earth each time cleaning and disinfection is required. There will be no objection to keeping foxes in the cages while in quarantine, if the cages are of sufficient size and kept scrupulously clean during the entire period of quarantine. For the collection of specimens for shipment to the laboratory, the foxes should be in separate compartments in order that the samples of each fox may be properly identified with the animal after the examination. The importer should furnish an attendant to take care of the foxes while they are in quarantine. Such attendant must look after the food and feeding of the animals.

The quarantine period should not ordinarily exceed six or seven days, or the time necessary to forward the specimens to the Bureau Laboratory in Washington for examination and reporting back to the inspector the result of such examination. It might be advantageous to owners to ascertain through the health conditions of their foxes as regards freedom from parasites and contagious disease before shipping. While this would not exempt the animals from inspection and quarantine, it would help safeguard against the possible shipment of infected animals. It is suggested that if several owners would combine in making their shipment of foxes, the expense of providing suitable quarantine accommodations, feed and attendance might be decreased. Each owner's foxes in such case, however, would have to be in separate tight partitioned compartments.

The quarantine must be on the American side at the port of entry where the Bureau Inspector will have full supervision over the animals. One of two prospective importers have expressed a desire to ship their foxes through Port Huron, Mich., and as the Bureau has an inspector at that point, it is probable that favorable consideration will be given to the issuance of permits for importation of foxes through Port Huron. It is not intended to make any pro-

vision for the importation of foxes at Detroit. Dr. C. H. Canfield, 822 Wall St., Port Huron, is the Bureau Inspector in charge at that point. Very complete instructions have been given Dr. Canfield relative to the equipment which must be provided for foxes, and it is suggested that before proceeding with arrangements for importing any foxes you confer with Dr. Canfield, as it is believed that he can be of considerable assistance to you in the matter of arranging for suitable importation by you through Port Huron.

Very truly yours,

(Signed) R. W. HICKMAN,

Chief, Quarantine Division.

Mr. Frank Ashbrook, who has been detailed by the Bureau of Biological Survey, Washington, to make a survey of the fox ranches in this country, has been spending about ten days in the vicinity of Muskegon, visiting about twenty-five of the ranches near here, gathering data and information regarding the methods of feeding, breeding, housing, etc. He was very much impressed with the thorough manner in which the business is being conducted here, and with the excellent quality of the stock.

Some of the officers of the Association accompanied Mr. Ashbrook on a two day trip to Grand Rapids and vicinity, taking in the ranches in that section. A pleasant and profitable evening was spent at the Hotel in Grand Rapids where a number of fox men met to hear what Mr. Ashbrook had to tell them and to ask questions regarding the future of the business, etc.

A similar trip was made to Big Rapids where a number of people are getting started in the business. Mr. F. W. Cole, of that city, invited all who were interested to meet at his house in the evening, and as a result about sixty gathered on his lawn and heard the industry discussed from all angles. Everyone went away feeling more optimistic and enthusiastic than ever before.

Mr. Ashbrook is a very capable young man and very much interested in his new work. We are indeed fortunate in having such a man detailed by the Government in the interest of the fox industry and everyone should co-operate in helping to solve the many problems that confront the rancher. Mr. Ashbrook left Muskegon July 14 for the western fox centers but will be back here again for the Second Annual Live Fox Show, December 7, 8, and 9.

A number of new ranches are now under construction in the vicinity of Muskegon. Mr. B. G. Horling, Coopersville, is building a circular ranch with sloping sides and concrete, underground kennels. Mr. Horling has been very successful in raising Ginseng and other medicinal plants. He has about five acres under cover now. He has done a great deal of experimental work with the state and federal men studying the various diseases peculiar to these plants and as a result, he is considered an authority on parasites and bacteria and the control of same. He intends to give the same careful study to his foxes as he has given to his plants. He intends to have his foxes parasite free before placing them in their new quarters, and we believe that Mr. Horling can keep them parasite free if it is possible to do so.

Mr. Henry Smiling, Muskegon, is also building a circular ranch and is sparing no expense in its construction. His underground houses are built of hollow tile with tile shoots

leading to them. They should last a life time. Mr. Smiling has been caretaker on the pioneer fox ranch in this vicinity, for a number of years. He is considered one of the best authorities on the business in the country. We believe that when Mr. Smiling has his ranch completed he will have something that will be worth coming a long ways to see. More will be written about his ranch after it is completed, and possibly it will be possible to get a good picture of it for the magazine.

Another new ranch under construction belongs to four partners, Charles Burnett, Edward Depew, Harry Hendricks and Burnard Klise, all of Muskegon, Michigan. This one is located on the West Michigan Pike about three miles out of Muskegon. These men have some excellent quality stock to start with and no doubt they will meet with very good success. All four of these men are on the police force of Muskegon. They have twenty pens built now and their guard fence provides room for that many more. They will place their foxes in their new quarters very soon now.

Mr. Peter Volmari, who is a local eye specialist, has constructed a new ranch about two miles east of Muskegon Heights. His is a thirty-eight pen ranch, also circular style. Each pen is 68 feet long and 8 feet wide at the bottom. It has sloping sides which prevent the foxes from climbing the wire, and is 7 feet high. This is a new style of ranch and everyone is anxiously waiting to see how it works out. It is about the only ranch in this part of the country that has no underground house, but the double upper ground house is constructed in such a way as to eliminate the necessity of having the under ground house.

Mr. Volmari is a very loyal member of the National Association and has served on a number of committees.

Members are beginning to realize more and more the importance of having their foxes registered. The hit and miss method of breeding that has been followed more or less since the business started will soon give way to more scientific and practicable methods. Just recently, while looking up the ancestors of the foxes on one ranch, it was discovered that very closely related animals were mated. In one case the mates were brother and sister. Both were exceptionally fine animals but failed to breed this year. However, that is not attributed to the fact that they were so closely related.

The following, taken from Farmers' Bulletin 1167, "Essentials of Animal Breeding," written by George M. Rommell, Chief Animal Husbandry Division, United States Department of Agriculture, brings out some very important points to be remembered:

"A breeder's success depends to a very large extent on his ability as a qualified judge of animals, on his knowledge of the pedigrees of his animals, and on his acquaintance with the characteristics of the ancestors of those animals. The breeder's ability as a judge must be based on an instinctive gift to recognize animal types and carry them clearly in mind. This is of even more importance than a knowledge of pedigrees, because a knowledge of pedigrees is of practical value only as it gives its possessor an acquaintance with the individuality and type of the ancestors in the pedigrees, which he may use in making effective matings and thus perfecting the type of his animals. One of our most eminent breeders of hogs once made the statement, 'I breed my hogs in the barnyard, with the animals before me, not in my parlor with their pedigrees before me.' That homely statement carries a truth which every ambitious young breeder should follow. Before deciding to make a certain mating, the man who made this statement is said to spend hours studying his breeding animals, going over their characteristics, and especially recalling to mind the characteristics of their parents, grandparents, and more remote ancestors. If

this review is satisfactory, the mating is made; if not, some other is tried.

"To sum up, knowledge of a pedigree must not stop with the routine knowledge of the names of the animals which compose it. The breeder must know also the characteristics of these animals, as far back as possible, their weaknesses as well as their strong points. When he possesses this information the breeder can more intelligently mate individuals and blend bloodlines. He has then a practical working knowledge of pedigrees. The study of pedigrees, therefore, based on a knowledge of the characteristics of the animals composing them, is indispensable to the man who would excel as a constructive breeder."

The Greater Muskegon Chamber of Commerce are co-operating with the Association this year in putting on the Second Annual Live Fox Show. With the support of this strong organization we are sure to put on a show that will be hard to beat. From all indications it appears that there will be a large number of foxes exhibited this year. In fact it may be necessary to place a limit on the number each exhibitor is allowed to show.

The show committee has already begun to make plans. A number of booths will be erected in the auditorium and rented at a nominal fee to those who wish to use them. The question as to whether or not the show will be strictly American has not yet been decided upon, but we hope this matter is settled at the next meeting of the Committee. It is now planned to charge an entry fee of \$5 per fox. This is a great deal less than the cost of having each exhibition cage built, and considering the benefits each exhibitor receives, it is a very nominal cost and very cheap advertising.

Mr. C. L. Robins is here from Utica, N. Y., in the interest of The American Fox and Fur Farmer. He will spend about ten days here gathering data for the next issue of the magazine, and soliciting subscriptions and advertising.

The editor of this magazine has promised to devote about two pages in each issue to the National Association, in which to publish our notes and to run a few photographs of our members each month. In this issue appears the pictures of our president, J. D. Ross; our treasurer and former president, H. A. Bauknecht; E. L. Ransford, our vice-president and Dr. G. W. Russell, one of our worthy directors.

We want the photograph and a little writeup of each one of our members so that we may publish them in future issues. Send these in to the secretary at the Court House, Muskegon, Mich.

The Association one year ago had 59 members. To-day we have 200 on our list, with new ones coming in nearly every day. We have nearly enough foxes registered now to warrant the publishing of a herd book to be distributed to the members.

It seems to be the consensus of opinion that there should be but one Fox Breeders Association in America. No doubt the two associations in the country now will get together some day to discuss the matter and establish one big association. It would be a wonderful thing for the industry if this could be brought about to the satisfaction of all concerned.

Our next regular meeting will be held in Muskegon, Wednesday, September 7th. All who are interested are invited to attend.

Mr. L. I. Breakey, and his two sons, are building a new ranch at Marshall, Mich. They called at the office while they were in Muskegon recently, and made application for membership in the Association. They also will have their foxes registered. The four pair purchased last fall raised ten pups this spring. These with two pairs of this years pups they purchased will make twenty-two foxes, a nice start.



COAT OF ALEXANDRE'S AMERICAN BROADTAIL
TRIMMED WITH TAUPE FOX

Manufactured by S. J. Manne & Bro.

Courtesy of "Fur Trade Review," New York City

NEXT FUR AUCTION SEPTEMBER 19

The New York Fur Auction Sales Corporation intends to hold its next fur sale on September 19 and it is expected that the auction will continue for one week. The sale will be held in Masonic Hall at Twenty-third street and Sixth avenue, New York.

"Winnipeg, Man., July 29. (by the Canadian Press)—Silver fox at \$275.00 showed an advance of 25 per cent."—N. Y. Journal of Commerce, June 30th.

FEEDING FOXES

By U. G. LOVEITT, Woodfords, Maine

I am glad to add my few words to the splendid articles which have already appeared in your publication relative to the feeding of foxes, in the hopes that they may be of some use to some of your readers. I feed the old foxes Monday morning fox biscuit; at night about one-quarter pound of horse meat to a fox. I also give them milk in the morning. Tuesday I make bread out of barley flour, corn meal, middling and bone meal, and feed them this bread. Tuesday night I feed them fish heads. Wednesday I feed them fox biscuit in the morning, and tripe at night. I would feed some beef or veal instead of horse meat part of the time if I could get it, but it is hard at times to get it in this locality. At mating time I feed the same, with the addition of an egg in the morning.

As soon as the young are out of the den I feed them fox biscuit one morning and bread the next morning, also give them milk every morning. At night I give them horse meat and once a week feed them fish heads, and once a week I feed them tripe or veal.

I worm the little ones as soon as they come out of the den. I use tabloid worm capsules. To administer the capsule I have something I made myself in the shape of a brass tube, about seven inches long. One end is rimmed out so that a capsule will just enter the tube. I use in this tube a wooden plunger that will just slide through the tube. I insert this tube in the mouth, after putting the capsule in the end, and push the plunger through and the capsule is in the pup's throat. I find this method very satisfactory and would recommend that every rancher try it.

SUBSTITUTE MOTHER LAVISHES AFFECTION ON AN ADOPTED FAMILY

From "East Oregonian," Pendleton, Ore., April 29, 1921

Two substitute mothers are lavishing care and affection upon adopted children at the fox farm operated by Dr. B. C. McNabb, 2214 East Court street. They are Bessie, a beautiful silver fox, and Mary, a sleek fat house cat.

Bessie is the mother of four fox puppies and Mary of five kittens. Dr. McNabb recently gave the puppies to the cat and the kittens to the fox, as he feared Bessie would injure her valuable young, because she had a habit of carrying the babies about the farm. After some hesitancy, each mother accepted the new children and Dr. McNabb believes that the experiment will be successful.

There are about eighteen grown male and female foxes on the farm and about twenty young. The fox farm is the only one in Oregon with the exception of a small one at Pine City.

July 30th a throng of hotel guests and other spectators were onlookers in the corridor of the Hotel Touraine, Boston, when Vice-President Coolidge, seated at a table in the lobby, threw the electric switch which started the Pageant of Progress in Chicago. Mr. Donovan, one of Boston's leading telegraph operators, was on hand, and the former Bay State Governor, threw the electric switch precisely at 11 o'clock by Bill's famous watch, the same timepiece which was used by President Wilson at Cornish, N. H., in 1915 in determining the moment of throwing the electric switch which released a 400 foot flag at the opening of the World's Fair at that year at San Francisco. The June Bulletin has an account of the Pageant of Progress, where close to one million dollars' worth of furs will be displayed on about sixty live models, also a modern fur farm will show live animals.

THE MAKING OF A QUALITY FOX

By GEORGE S. TUTTLE, So. Ryegate, Vt.

During the past six months, more than ever before in the history of the fox industry, those interested in the raising of Silver Foxes have come to consider more seriously the fur quality of foxes.

They have come to the point where they are demanding Advanced Registry Breeders, and are no longer content with—just foxes.

In the past the beginner has had the idea that the really fine quality stock could only be obtained on Prince Edward Island. Although this feeling is still more or less prevalent the fact is, that P. E. Island can no longer truthfully boast of the best foxes in the world, but must be content to claim—only as good.

The Island still has the greatest numbers but when it comes to quality it will be found that the ranches in the Eastern States can show a better average quality than can be found in the average Island ranches.

Of the quality in the Western ranches I cannot speak first handed as I have visited only a comparative few of them.

Many of the new ranches in the West, the past two or three years have bought their foundation stock in the Island and were apparently content when they were supplied with PURE STANDARD BRED STOCK — and the quality wasn't questioned until they had a few pelts to sell. They then discovered that pedigrees did not always mean high priced pelts. FUR VALUE is the real foundation of the industry and when one wanders far from the real fur quality stock he discovers the pedigrees alone do not bring in returns.

It is more difficult year by year to secure the really fur quality stock, for the simple reason that the majority of the ranchers still hold on to the medium and inferior grade stock and they have learned, or are learning that as pelts this class is not wanted and must be sold alive to bring in any profits whatever.

If the number of Silver Foxes in the ranches could be culled from the present number of probably 75,000 down to 15,000 very few of the Quality Stock would be touched and the industry would profit immensely.

To really know Fur Value, a man must have years of experience and training, and it is safe to say at the present time that there are less than fifty men in the Silver Fox Industry who are competent judges of Silver Foxes and Furs.

As a rule the fur merchants of the large cities are not judges of Silver Fox and a few of the best have discovered the fact themselves and depend upon having their Silver skins graded and priced for them by an expert.

I know of one instance last January where one of the leading 5th Avenue, New York fur merchants valued a scrub skin at \$250, which, if it were mine, I should have been glad to have sold at \$100 or less. Errors of undervaluation are perhaps fully as numerous.

To insure Quality in Silver Foxes it was I who first advocated Advanced Registration requiring a fox to score up to at least 85 per cent perfect to be classed a quality fox.

If all ranchers would cull their breeders and keep only such animals as would pass advanced registry the market would show a steady improvement with much higher prices.

Occasionally an individual fox of unknown ancestry will score very high but such animals are not eligible to advanced registry until they have proven their breeding in their progeny for at least three generations.

A registration certificate should show the names (and numbers if registered) of all their ancestors for at least three generations. A party buying a Silver Fox is entitled to know what is back of the fox he buys.

In producing a QUALITY SILVER FOX—equally as important as his breeding, is his bringing up. The growth and development of a pup during the first four months of his life determines if he will be a truly fine individual or a scrub. Always remember that a pedigreed scrub is the worst of all scrubs.

In a Silver Fox his development begins—perhaps several months before he is born. The Sire and Dam must be strong, well developed animals, as well as being in the most robust condition.

Condition at breeding time determines, to a great extent, the number of pups that will be born in the litter. Being in good condition does not mean being fat, by any means. In fact a fat fox at breeding time is out of condition and will prove to be an unsatisfactory breeder. They should be in moderate flesh, very active and vigorous with good appetites, and good fur. A fine silky coat of fur is one of the best indications of a general healthy condition. The breeder should also be free from parasites.

After breeding, the pregnant female must have good nourishing food and good variety and all abnormal appetite cravings must be corrected.

With such conditions ideal, one may expect a good sized litter of strong, healthy pups well developed, that will get all the milk from their mother that they can use for the first month of their lives.

When the pups are sixteen days old (or more often earlier) I always look them over for possible symptoms of round worms. At this age a pup should be plump, round and roly-poly with a fine silky coat, indicating plenty of milk from its mother and freedom from worms.

If the pup has a scrawny appearance, or if its sleep is fretful and restless or if its fur has a dry, harsh, brittle feeling it indicates that the pup is not getting sufficient nourishment or else is infected with worms.

Either condition means that the pups get a poor start in life and their chances of making Quality foxes are lessened.

When in proper condition the pups will appear outside the den for the first time at twenty-eight days old. They are then ready for a little additional food beside their mother's milk. Fresh new milk and eggs beaten up should be provided and the pups very quickly learn to lap it.

They are also ready to begin eating meat. Absolutely the best solid food in the world for pups a month old is woodchucks and rabbits and *all they want to eat every day*. But never feed heavy meat to young pups.

A pup fed in this way will grow very rapidly and grow a strong bone development, as they eat bones as well as the meat of these small animals. No lime water or other corrective dope is necessary. They will never be weak in their legs and will never develop a weak digestive system. These

disorders are the fruits of sloppy food porridge, cereals, rice, and puppy biscuits, etc. There is yet no substitution for their natural food—small animals and birds, etc.

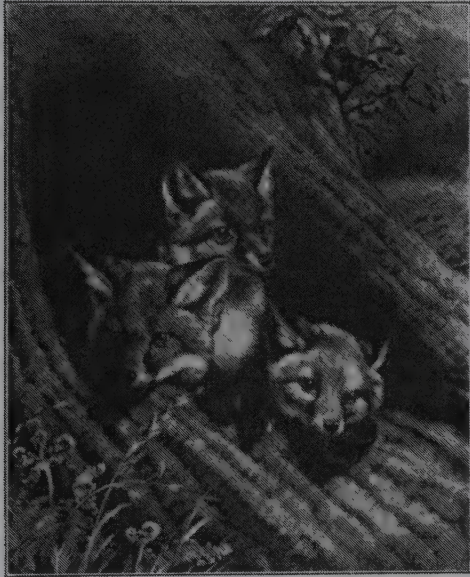
Under this system of feeding a pup at eight to twelve weeks old looks to have unusually large bones, long legs and long bodies, but no pot bellies nor crooked legs.

At four months old the pups should have shed their first teeth and have their permanent set well started.

At five months they should have practically their full stature and length but will yet fill out considerably.

In September at six months old they should be practically full grown. Such pups if of the right blood strains will then be ready to start their fur development and by December first at the latest they should be perfect specimens in body and coat. With a color of clear bright silver and raven blue black properly intermixed, and with a very fine silky texture.

Then we have a truly Quality Fox—an **ADVANCED REGISTRY FOX** and a fox that will produce pups like himself.



The Pas, Manitoba, July 22.

"Many U. S. Buyers at Manitoba Fur Sales. Buyers from New York, Chicago, St. Louis and Winnipeg competed for prime otter, mink, marten, Silver Fox and Beaver."—Philadelphia Public Ledger, July 23.

"May Sell Balance of International's Raw Fur Stock This Fall. The collection of furs referred to is part of the offering made by the International Fur Exchange in February. \$2,500,000 worth of goods were brought back by sellers because bids failed to come up to appraisal values."—N. Y. Daily News Record, July 28.

"May consider new financing for the New York Fur Sales Co. Board of Directors to call stockholders meeting in near future."—New York Daily News Record, July 23rd.

FACTS AND FIGURES

You have most likely been asked at some time since you began raising foxes, if there would not soon be an over-supply of pelts in the market. Perhaps, if you have not been in the business for very many years, you might have asked yourself the same question.

We have at this office, on file, some catalogues from the Public Auction Sales of Furs, held in London, dating back to 1893 (28 years ago). Now for a few figures.

March 1893, 28 years ago, London, 934 Silver and Black pelts offered.

March 1894, 27 years ago, London, 1747 Silver and Black pelts offered.

October 1917, 4 years ago, St. Louis, 540 Silver and Black pelts offered.

October 1918, 3 years ago, St. Louis, 889 Silver and Black pelts offered.

February 1920, 1 year ago, New York, 324 Silver and Black pelts offered.

April 1920, 1 year ago, New York, 331 Silver and Black pelts offered.

A SPECIFIC DUTY OF \$350.00 PER FOX

These fox Associations through their respective chairmen handed to you the following signed statement in support of this duty:

"The Chairman of the National Silver Fox Breeders Association of America, Muskegon, Michigan, and the Chairman of the American Fox Breeders Association, Boston, Mass., have met and agreed that a **SPECIFIC DUTY** of \$350.00 per fox should be levied on ALL live Silver and Black Foxes offered for entry into the United States, as a means of protecting and developing the raising and breeding of Silver Foxes in this country.

"The Associations mentioned, beg to call the attention of the conference to the fact that the Canadian Duty on American Silver and Black Foxes is 25 per cent ad valorem. Silver Foxes most desirable for breeding purposes are selling at the present time for \$2,000 per pair. The present Canadian Tariff on American Foxes of this value would be \$500.00 per pair. The advocated American Tariff on Canadian foxes of this value would be \$700.00 per pair, or ten per cent in excess of the Canadian Tariff, which is more than equalized by the difference in rates of exchange.

(Signed) NATIONAL SILVER FOX BREEDERS
ASS'N. OF AMERICA,
By A. L. Williams,
Chairman Tariff Committee.

(Signed) AMERICAN FOX BREEDERS ASSOC.
By J. S. Sterling,
Chairman Tariff Committee.

It would seem self evident therefore that Fair Play requires that the U. S. Government give the same protection to its Silver Fox Farmers as Canada gives to her Silver Fox Farmers.

"From Tariff Information 1921, N. S. F. B. A. of A.

"The first autumn sale of the New York Fur Auction Sales Corporation will begin September 19 and continue for seven to ten days. Consignments will be accepted and assorted for inspection up to and including August 27th. Officials report they are already in receipt of considerable stocks and that indications point to an excellent selection."—Philadelphia Public Ledger, July 14th.



GEORGE S. TUTTLE
South Ryegate, Vt.
A regular fox man

TRAPS

By F. E. BRIMMER, M. A., Cazenovia, N. Y.

What the coming of the automobile has been to transportation:

What the airplane means for speed in mail service:

What the tractor does for agriculture:

What electrical appliances do for illumination and power:

What the discovery of radium does for the cancer cure:—

Just what all these things means in modern enterprise and living betterment, just as important has been the TRAP in the fur trade and in the beginning of civilization.

Somebody said that civilization follows the plow but in the case of our early colonial history it might be just as proper to say that *civilization followed the TRAPS* of the fur traders.

Beginning from New Amsterdam (New York City) as the hub there were pushed into the backwoods of what was to become Albany, Utica, Syracuse, Binghamton, and dozens of other busy centers, scores of fur buying outfits.

The fur post was in most cases the first building after the fort erected and the location of the settlement was decided by its facility for handling the fur trade.

Had not men sought the rich furs of the North American Continent as they did, then civilization in our early

New World would have been delayed. Fur traders spread civilization along the banks of the St. Lawrence and the fringes of the Great Lakes, and the Mississippi basin and followed every available water course set up the foundation of future towns and cities. The Factor House, the Fur Post, the place where furs were bought or bartered was the pivot to the life of the first settlements.

And the Factor, the Furman, the Trader, at all events the strong man who bought and bartered fur; that personality was the dominating force in the life of the nucleus of our first towns and cities. He was the judge and the police and the legislator compressed into one.

Back of every fur post and fur buyer there was the TRAP.

TRAPS, whether of cunning Indian or breed invention or of steel or iron manufactured; those were the cornerstones that made the foundation of a new civilization.

Truly civilization followed the TRAP!

When Henry Hudson named perhaps the most famous river in the world it is estimated on sound authority that there were a good million of beavers in the boundaries of what was to become the Empire State. These beavers were trapped from the start and formed the greatest asset of wealth offered by the newly discovered continent. As many as 80,000 beaver pelts were trapped and shipped per year to the Mother Country to supply the gigantic demands given to the fur trade by the fad of the famous beaver hat.

This enormous wealth of beaver pelts was made available for the world fur mart because of trappers. But what is a trapper if he has no TRAP to help him obtain fur? His very name comes from the tool he uses.

In some respects the TRAP has proven too successful. It has frightfully exterminated our furs! By the end of the nineteenth century or before the original million beavers in the Empire State has shrunk to nil. They have been brought back by propagation and protection.

What has been true of the beaver is likewise true of the fox and the mink and the raccoon and the muskrat and the others. Especially the steel TRAP is a most efficient machine for supplying the fur trade with its prime commodity—raw pelts.

Of late years we have discovered from bitter experience that there is a time for everything. There is a time to trap and a time not to trap. So we have legislated "open" and "closed" fur seasons for the help and protection of trapped fur animals.

But that is merely negative help, this injunction against trapping in certain periods.

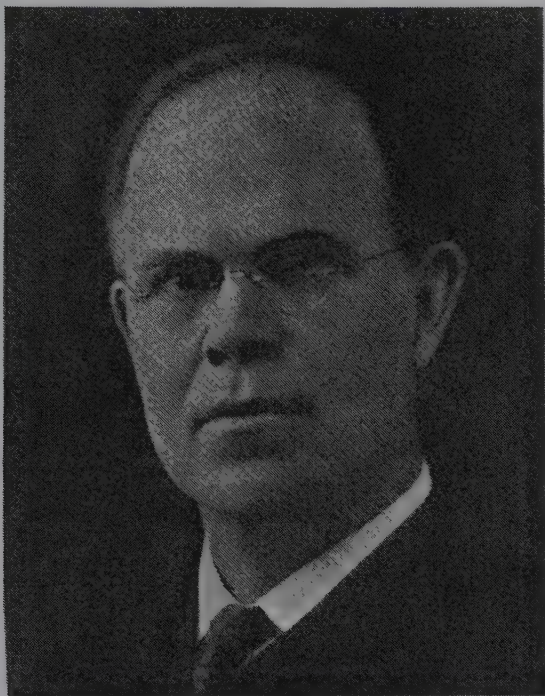
Of most recent years there has come the positive cure for obtaining pelts for the fur trade where the high efficiency of the steel TRAP has thinned the raw material to the danger point.

That positive help is Fur Farming.

I would no more consign the TRAP to the scrap heap because it has sometimes been misused than I would the automobile because there are many who misuse this vehicle, but when the TRAP reaches its limit of fur supply then the Fur Farm steps in and takes up the burden where the TRAP dropped it.

But let us remember that back of every Fur Farming enterprise is the TRAP that originally secured the seed from which that Fur Farm grew. Let us hail the TRAP, and especially the wonderful machine known as the steel TRAP, as an invention for good equal to the automobile and airplane and tractor and electrical equipment and radium.

And let's never forget that the TRAP in one form or another planted the seeds of our early American civilization, which we are enjoying in full harvest to-day.



J. D. ROSS

President, National Silver Fox Breeders Association of America
Muskegon, Michigan

Mr. J. D. Ross, President of the Association, is one of Muskegon's leading citizens. He owns and operates a large dry cleaning establishment in the city and is also working on a number of inventions which will, no doubt, some day make his name known all over the continent. He isn't saying much about these yet, however. His fox ranch is situated on Bear Lake, a well known summer resort near Muskegon, where he is carrying out a number of experiments in connection with pen construction, feeding, housing, etc. He is very well pleased with the outcome so far. Each of his pens has a cement floor covered with clean, Lake Michigan sand which is replaced at regular intervals. The foxes wintered well and are doing very well. He calls his place an experimental farm for the reason that he has various kinds of fur bearing animals and is always trying something new in the way of raising them. Mr. Ross is one of the charter members of the National Association and was on the committee to help draft the constitution and by-laws. He was also largely responsible for the success of our first annual live fox exhibit last December. He was born in Canada, and moved to Muskegon twelve years ago. He is now 100 per cent American, and is boosting American foxes.

PELTS AND FURS

Silver Black Fox Pelts of good quality are in demand and dealers in most of the large cities are in the market for good pelts. They will pay from \$250.00 to \$400.00 for a clear lustrous Silver Black Fox pelt. The man who has a

pelt for sale must remember the dealer does not buy because he wants to wear the pelt himself, he buys to sell again and he has to sell for what the public is willing to pay, and the public, *on an average* is not paying above these prices at present. Whether the price will advance or not, is entirely problematical. Throughout the country all the stores are making a concerted effort on the August Sale of Furs. This August Sale of Furs is coming to be an annual event and is of benefit to both the buyer as well as the dealer, and the entire industry is benefited. The winter fur, piece and garment season, is quite well defined, and as only so much work can be accomplished in a given time, storekeepers and wholesalers can only be expected to look ahead, to manufacture and lay in their stocks up to a given point. This has heretofore almost invariably resulted in a rush of speculation, artificial prices, and a lot of poor workmanship caused by having to put to work inexperienced labor during this rush.

NEW UTICA PUBLICATION MAKES ITS APPEARANCE

The American Fox and Fur Farmer, Ward B. Edwards, Editor, Makes Its Bow to the Public

From "Utica Daily Press" July 23, 1921

The American Fox and Fur Farmer, a new periodical, to be published monthly in this city, made its appearance yesterday in a very attractive form. It is published by a company bearing the same name and its editor is Ward B. Edwards, whose office, 406 Arcade Building, is the office also of publication.

The first issue consists of 32 large pages, printed on excellent paper and with a colored cover of exceedingly handsome design. It is to be devoted exclusively to the silver black fox industry and fox farming and the subscription price is \$3.00 a year.

The first number has an interesting table of contents, the articles being by experts in the fur industry and illustrated. Fred H. Bohrer of this city has an article on "The American Rabbit Industry," and Perry A. Cole of Remsen has an article on "Taming Foxes."

Several pages of advertisements give the initial number of the publication a prosperous appearance. He is well qualified to act as editor of the publication, which has an extensive field for growth.

LITTLE READITS

What do you really know about live foxes? What have you learned yourself alone, and if you have learned lots of things alone, by yourself, is it worth more to you to keep it to yourself, or telling the other fellow?

There is a lot of sport awaiting you, as well as your foxes, if you will take the trouble to open a burlap bag and spread it out fastened securely to six stakes, one at each corner and one-half way along the sides, the stakes should be firmly set in the ground, the top being about 18 inches above the surface. Put this up in a pen containing young foxes and you have got a good exerciser and plaything at the same time.

Here's another one. You always find that a fox likes to lay on top of its house. They use this as their lookout. If you run a ten or twelve inch board shelf along one end of the pen for about five feet, another board acting as an incline or run to the shelf, set the shelf about four or five feet from the ground, you will find Mister or Mistress Fox on that shelf oftener than you will on its house. Shouldn't wonder if they liked it better for a lookout.

FUR FARMING AS A SIDE LINE

By NED DEARBORN

Formerly Assistant Biologist, Bureau of Biological Survey, United States
Department of Agriculture

All domestic animals originally came under the control of man by appropriation from the wild state in time of need. As cattle, horses, sheep, and poultry have been domesticated, distributed to the ends of the earth, and differentiated by careful breeding for specific purposes, so too will it be with our wild and valuable fur animals. The great problem now confronting the fur industry is how to obtain from a waning source the necessary stock for its permanent development. To this there is but one solution: Domesticate the fur bearers and farm them, as has been done over and over with other animals. The killing pressure on those remaining in the wild state will then be reduced, the fur trade supported, and a new farm product developed. Believers in economy and diversification will utilize the beef and chicken heads, the horse flesh, and the milk they have heretofore been wasting, in taking up fur farming as a side line, profitable as a by-product of the regular farming operations and pleasurable in the care of lively and beautiful pets.

The demand for fur has existed since primitive man first sought skins to shield his naked body from the cold. It is fundamental and will endure while man inhabits the earth and furs are to be had. Its strength can be judged by the volume of trade it supports. In 1913 the dressed and manufactured furs imported into the United States were valued at more than \$15,000,000. North American furs annually marketed in the United States and England have an approximate value of \$60,000,000. These figures show the commercial importance of fur, and in addition to this the fur trade furnishes a livelihood for many thousands of workers in the factories and stores of this country.

In the history of the fur trade, two facts are prominent: (1) The finer and more durable kinds of furs, as beaver, otter, mink, and marten, have become so scarce as to be largely replaced by the coarser and thinner grades which formerly were regarded as of little or no value; (2) the choicest furs are now bringing fabulous prices. Although the whims of fashion influence prices of furs, the fluctuations thus produced are compensatory. When one kind is cheap because fashion temporarily neglects it, another is dear because of her temporary favor. The dark, thick, soft, and glossy furs, however, like rare jewels, are scarcely affected by passing styles.

The demand for fine furs and their scarcity have made possible the introduction of fur farming, either as a special business or as a side line. It is open to all who love animals and have at least a back yard in which to keep them. Several species have been tested in captivity, and when rightly managed have yielded satisfactory returns. Several other species may do equally well, especially since the production of superior strains is always possible by selective breeding. The food required is mainly the same as that fed to dogs and cats, and may include table refuse, milk, butcher's waste, and horse meat. The labor of attending the animals is light. Professional men and women, as well as the mistress of the farmer's household, may take just pride in wearing furs of their own raising.

Fur Animals Already Domesticated

Among the score or more of different kinds of fur-bearing animals native to North America about a dozen seem to be suitable for domestication. Of these, the skunk, the mink, and the silver fox have been bred successfully in captivity in widely scattered localities.

The skunk family is peculiar to the Western Hemisphere, and those members having valuable fur belong mainly within the limits of the United States. Notwithstanding its extraordinary means of defense which has caused it to be generally regarded with abhorrence, the skunk is coming to be recognized as a very useful animal when at large and one of the most easily domesticated when captive. Its common occurrence in settled districts and the remunerative prices offered for black skins encouraged some of the friends of the skunk to undertake its domestication about 30 years ago. To-day the number of skunk breeders in this country is greater than that of all other breeders of fur bearers combined. The animal tames quickly, is gentle, and is easily managed. The fact that it remains in its den during the severe weather of winter makes it more easily cared for than most other animals. Its fur is of medium length, erect, and possesses a brilliant sheen. These qualities make it very attractive. Unfortunately, protracted use causes it to fade from a glistening black to a dull reddish brown. The average of New York quotations for the best skunk skins during the past 12 years is \$3.

Minks appear to have been the first of the wild fur bearers to be domesticated in this country. Nearly 50 years ago a resident of Oneida County, N. Y., began to breed them, and for a considerable period exhibited his tame pets at fairs and sold them for propagation. At that time the high prices incident to the Civil War made mink raising profitable. Skins were high, and live animals for breeding stock brought \$30 a pair. The period of financial depression which followed made mink farming unprofitable and for many years it was abandoned and forgotten. Recently it has taken on new life, and where conditions of management and food supply are favorable, has been decidedly satisfactory to those engaged in it. Mink fur is exceedingly durable, ranking in this respect among the very best. With care it will last a lifetime. It is rather short, but very thick and soft. The guard hairs do not break readily, nor has the underfur a tendency to become matted. Although sunlight gradually gives its original dark brown color a warmer tone, its beauty is but slightly lessened. New York quotations for prime No. 1 northern mink skins during the years 1905-1916 range from \$1.25 to \$9 each, the average being about \$6.75.

Among the progeny of a pair of red foxes it occasionally happens that one or more markedly differ in color from their parents. The underparts are black instead of white, and the upperparts also are more or less black. When the dark areas on the upperparts are concentrated in two stripes, one along the middle of the back and the other across the shoulders, and the sides are covered with a varying mixture of red and black hairs, the animal is known as a cross fox. When the red hairs of the upperparts are entirely replaced

by black, the white hairs remaining as usual, it is a silver fox. When all but a few of the white hairs are replaced by black, it is a silver black fox. A prime silver fox skin is a rare and beautiful object, and, as such, commands a high price. Breeding silver foxes was first undertaken upward of 20 years ago on Prince Edward Island, Canada. There are now many successful fox farms in Canada and a considerable number in several of the more northern States. Foxes are naturally timid, but, if taken in hand when quite young, can be made very tame, although tameness does not seem to be an essential to success in breeding them. Fox fur is soft and rather long. Its beauty is entirely in the long guard hairs which overlie the underfur. It is not very durable, as the guard hairs break after a few seasons' wear, leaving the less attractive underfur exposed. The average of quotations for the best grade of silver fox skins during the past 12 years is about \$600 each. Numbers have been sold for less than \$100, while very many have brought far more than the average quotation here given.

Fur Animals Which May Be Domesticated

That foxes, minks, and skunks, although presenting great differences in habits and temperament, have been brought into domestication indicates that other kinds of fur bearers also may eventually be tamed and bred in inclosures. Among the species that have been partially tested for this purpose are the marten, fisher, otter, blue fox, raccoon, the beaver, each of which is adapted to definite environmental conditions and to specific purposes.

Martens naturally inhabit the northern coniferous forests from coast to coast, extending northward to northwestern Alaska and southward along the mountain ranges to California, Colorado, and Pennsylvania. They are nervous, active creatures, but bear confinement well and are not difficult to tame. They have been bred on fur farms in Alaska and in several places in Canada. Their size is about twice that of minks. The fur, which is very soft, somewhat resembling that of foxes, is about one and one-half inches long when prime. The color varies, individually, from pale gray to orange-brown and dark brown. The average of quotations for the best grade of marten skins during the past 12 years is about \$20 each.

The fisher, a member of the same family as the marten, is found over much the same range of territory, although it does not extend so far north. Its weight is about the same as that of the red fox, but its short legs give it an altogether different aspect. Although able to climb trees, it spends much of its time on the ground. Being no longer common, few efforts have been made to domesticate it. It has been tested sufficiently, however, to demonstrate its ability to thrive and increase in confinement, a sufficient reason for assuming that it will ultimately be bred regularly for its pelt. The color of fishers varies from grayish brown to nearly black. The fur when fully developed measures about two and one-half inches in length. It is used mainly for muffs and neck and shoulder pieces, the large, bushy tails being particularly effective. The average of New York quotations for fisher skins during the past 12 years is about \$20 each.

One of the most promising fur bearers for propagation in localities having an abundance of water is the otter. When captured young this animal tames readily and makes an engaging pet. It is said that the otter found in southern Asia is sometimes trained to catch fish for its master. A pair of otters in the National Zoological Park, Washington, D. C., have recently reared a litter of four young. Although essentially aquatic and very fond of disporting in water, they do not require a great quantity of it. Otter fur is about an

inch long, erect, and very thick. It is very durable, ranking with mink fur in this respect, and is used chiefly for trimming garments. The average of prices quoted for the best grade of otter skins in the past 12 years is about \$20 each.

Another animal that has attracted considerable attention in this connection is the blue fox, a dark slate or brown phase of the white or arctic fox. It is more docile than the red fox, but for some unknown reason has not been bred in inclosures with nearly the degree of success achieved with varieties of the latter species. It has, however, been propagated satisfactorily on several of the Alaskan islands, where the only limits to its movements are those set by the sea. Whatever the nature of obstacles encountered by those who have attempted to raise this animal in confinement, it is probable that eventually they will be overcome, and that persons living in the colder portions of the country will be able to wear blue fox skins of their own raising. Blue fox fur is nearly two inches long, and is very fine and thick. The average American quotations for the best grade of pelts for the past six years is about \$44.

That the raw material for handsome and comfortable raccoon-skin coats can be produced in a spare corner of one's back yard seems to be an established fact, judging from the results attained by the few who have undertaken to raise the raccoon. This animal is distributed over the greater part of the United States, being absent only in desert and high mountain regions. It is nocturnal, and at home both on the ground and in trees. Water is essential to its welfare, but large quantities are not needful. Its nightly range is often along the shore of ponds or streams, and its food is generally washed before being eaten. In a number of instances raccoons have been bred successfully. From a strictly commercial standpoint they are not likely to become popular, however, for the reason that if their food must be purchased its cost will be prohibitive. On farms where there are milk, fruit, and corn meal in plenty raccoon raising is well worth a trial. When taken young raccoons become very tame and make quaint and interesting pets. Their fur is mottled gray in color and about two and one-half inches long on animals from northern States. In the South the fur is shorter. The average price for the best pelts is about \$2.50.

Judging from the few experiments made with it, the beaver may be raised in any region containing alder, aspen, cottonwood, willow, or other trees upon which it feeds. Unlike the species hitherto considered, it subsists entirely on vegetable food. Although armed with enormous cutting teeth suitable for felling trees, beavers are tolerant among themselves and docile with their keepers. Fully grown specimens trapped wild become so gentle within a few weeks that one may handle them without danger of being bitten. Beaver fur has long been extensively used in making muffs, stoles, collars, trimmings, and the finest quality of felt hats. The average price in recent years has been about \$8 a skin.

Choice of Species

In making a deliberate choice of species to be propagated for fur, one should give due consideration to climate, the character of his immediate surroundings, his available space and capital, the nature and quantity of food materials at hand, and the convenience of securing breeding stock. The climate best suited to each animal is indicated by the natural distribution of that animal in the wild state. Thus, skunks, which are not found north of the temperate belt, are not likely to do well in Alaska, nor would one think seriously of attempting to breed arctic foxes in a southern climate.

The climate in the northern tier of States and southward along the mountain ranges to northern California, Colorado, and West Virginia is favorable for all of the ani-

imals that have been mentioned. Alaska is not suitable for raccoons and skunks, nor, excepting the warmer timbered part along the southern coast, for fishers. The arid Southwest and the Great Basin, between the Rocky Mountains and the Sierra Nevadas, are entirely too dry and sunny for fur raising. In the Central and Southern States one may raise minks, skunks, otters, and raccoons, although it should be clearly understood that the farther south fur is produced the thinner, shorter, and less valuable it is.

Next in importance to climatic conditions are those of capital, situation, space, and food supply. The capital necessary to build a two-pair fox ranch and stock it with four choice silver foxes will be not less than \$2,000, according to prevailing prices, and it is likely that considerably more than this will be required. If stocked with cross foxes the cost will be much less, but even in this case it probably will amount to \$600 or more. The cost of installing a blue-fox ranch will generally exceed that required for cross foxes. It may ultimately appear that blue foxes are not adapted to live in captivity, but this can not be determined until they have been subjected to extensive tests. Foxes can not be kept in thickly settled communities, as they have an objectionable odor and do not breed well when frequently disturbed.

The cost of installing and stocking a mink or skunk ranch is comparatively small, depending somewhat on location. Material for a single pen for either of these animals can be bought for about \$2. Minks usually sell at from \$8 to \$12 each, and skunks at from \$2 to \$8, according to quality. Minks and de-scented skunks can be kept in an ordinary back yard, provided it is partially shaded. Ranch-bred minks and skunks are regularly advertised in publications devoted to fur interests.

Fishers, martens, and raccoons, although not requiring nearly so much outlay as foxes, must be confined in strong inclosures and be given room for enough activity to keep them healthy. Shade is essential to all. Most of those offered for sale have been caught wild. Prevailing prices for fishers range from \$50 to \$75 a pair, for martens from \$35 to \$65 a pair, and for raccoons from \$5 to \$8 a pair. The materials for a pen to accommodate one of these animals costs about \$25.

One should not attempt to raise otters or beavers unless a constant supply of running water is at hand. Moreover, there should be an unfailing source of fish which can be obtained at slight expense for otters, and fresh leaves and bark of trees for beavers. The best locations for these animals are among the mountains, where brooks run swift and clear, and trees cover the slopes. There is no regular trade in either of these species. Otters are rarely offered for sale, as those caught by fur gatherers usually die in the traps. In most of the States where beavers are still found wild it is unlawful to capture them. It is generally necessary, therefore, to import beavers that are to be used for propagation. In Canada they have been sold at about \$50 a pair. The cost of pens for otters or beavers can not be definitely stated, as they will vary with the location and character of the site.

Inclosures

The first step in preparing to propagate fur animals is to construct suitable inclosures. In selecting a site for an inclosure it must be borne in mind that a certain amount of shade is essential to the comfort of the animals and to the development of flexible, dark-colored fur. Young deciduous trees are preferable for making shade, as mature trees are likely to be shattered by storms and in falling to demolish pens and injure or kill the animals. Evergreen trees are undesirable from the fact that they shut out sun-

shine in winter as well as in summer. Water is an essential, and, if possible, pens should be so located that an abundant supply can be brought by gravity to each. Materials for inclosures consist mainly of lumber and galvanized-wire netting; and in larger and more permanent structures concrete is sometimes used for foundations. Each animal requires individual quarters, particularly during the breeding season. Every complete inclosure comprises a yard or runway, usually of wire netting, although boards or galvanized sheet iron are sometimes used, and a lightproof and waterproof den, usually made of wood. Dens are often made with two compartments, the one entered from outside being designed for a shelter and feeding place, the other, opening into the first, being the sleeping compartment. A sliding door is placed at the outside entrance. Wooden dens should be raised a few inches from the ground to keep them dry. Glazed tile has been successfully employed for dens. The facility with which tile can be disinfected is a point in its favor. All dens should be made so as to be readily opened for cleaning.

The best fox yards are about 50 feet square. The walls extend well into the ground or to a concrete foundation and are from 9 to 12 feet high, depending on the snowfall. They are generally built of 1½ or 2 inch poultry netting, No. 15 or 14 wire, and provided with an overhang at the top to prevent the animals from scaling them.

Inclosures for otters, raccoons, and beavers may be built on the same general plan as for foxes, but need not be more than five or six feet high nor more than 15 or 20 feet square.

Minks can be kept in pens as small as four feet square, though it is better to have breeding pens about twice this size. An excellent style of pen suitable for minks and skunks can be made on the same plan as ordinary portable chicken coops, having a double-compartment den 15 or 18 inches wide and high and three or four feet long, to which is attached a runway of 1-inch mesh, No. 16 gauge, poultry netting. This runway has floor, sides, and top of netting. The top is made in a separate piece, as a door, and is hinged to the top rail of one side and hooked or locked to the top rail of the other. Such pens are inexpensive and, when the woodwork is kept painted, are very durable. The ease with which they may be moved from place to place is particularly advantageous.

Pens for martens and fishers must be constructed of the strongest wire obtainable and have the top and floor, as well as the walls, made proof against their strength. Although 1-inch mesh, No. 16 gauge, poultry netting will generally hold them, such has not invariably been the case. The style of netting known as chain netting, while more expensive, is safer and more lasting than the regular style of poultry netting. Such pens should be at least eight feet square and eight feet high and contain branches or the tops of trees to allow the animals to exercise their propensity for climbing.

It is always advisable to surround each group of inclosures with a high fence which can neither be scaled nor undermined, as almost inevitably, sooner or later, some of the animals escape from their pens.

Food

Beavers in their native haunts eat grass, herbs, roots, foliage, and the bark of aspens, alders, birches, maples, willows, and other deciduous trees. When in captivity they readily accept bread, grain, and garden vegetables. In addition, it is thought necessary to supply them with foliage and bark of trees to the extent of perhaps a third of their food. Wild otters live mainly on birds and such aquatic creatures as fish, frogs, and crawfish. In captivity they are usually fed on fish, but when this fails they readily accept

raw and cooked meat. It is not known to what extent they may be fed on other kinds of food. Minks, martens, fishers, skunks, foxes, and raccoons thrive on the diet ordinarily given to dogs and cats. While young they are fed mainly milk on bread, crackers, and graham or oatmeal mush, to the exclusion of meat, which is likely to give them rickets. Meat or fish must be included in the diet of adults, but whether extensively or sparingly depends upon its cost rather than upon any exacting requirements on the part of the animals. A variety of food is necessary, however. Fruit, boiled carrots, mashed potato, and all sorts of table refuse can be mixed with regular cooked rations to excellent advantage. The meat used may be beef, mutton, horse flesh, chicken heads, or other butchers' waste, or the flesh of rabbits, woodchucks, or ground squirrels. Food that has begun to ferment or decay should not be used. There is no economy in giving animals unwholesome food.

Surplus meat may be preserved by salting or drying. Salt meat or fish should be sliced and freshened, preferably in running water, before being used. Meat for drying is sliced and exposed to air and sunshine or the heat and smoke of a small open fire. Where conditions are unfavorable for rapid drying, the meat may be dipped in a saturated solution of hot brine before being put on the drying racks. Ice is useful in keeping food from spoiling for a few days, but should not be relied upon to preserve large quantities of meat unless used in carefully constructed refrigerating houses.

Meat suspected of being infested with parasites or disease germs should be boiled. Rabbits and other rodents should be eviscerated, as their internal organs often contain tapeworms or other parasites. Rabbits intended for young animals must be skinned to avoid the formation of stomach balls of felted hair. Adults are not likely to eat enough rabbit fur to injure them. A certain quantity of hair, feathers, and other roughage is probably beneficial. Bone is undoubtedly an essential element of food for growing animals. By passing meat containing small bones through a grinding machine such as poultrymen use, the bone is made digestible and danger of choking is avoided. Large bones bearing fragments of meat are useful for strengthening teeth, and for quieting nervous animals by giving them something to do.

Only as much food as can be eaten immediately should be given at a time; otherwise it is likely to be stored in the nest and become offensive. In regulating the diet of fur animals, it is important to remember that they must be made fat before being killed for their pelts, and kept lean when they are to be saved for breeding.

Breeding

As success or failure in fur farming hinges largely on the course of events during the breeding season, it is important that the instinctive habits and the temperamental characteristics of the animals, as well as the location and arrangements of pens and the manner of feeding, be carefully considered. In the wild state foxes and beavers have but one mate, while raccoons, otters, fishers, martens, and minks are polygamous. Although in rare instances male foxes in captivity have been mated with two or three females in the same year, such matings as a rule are unproductive. On the other hand, breeders of minks and skunks regularly mate a single male with from four to six females. In all cases it is well to allow the individuals proposed for mating opportunity to become acquainted by occupying adjoining yards a few days before being allowed to run together. It is not practicable to attempt to mate animals that disagree, and when first paired they should be watched in order to

prevent violent quarrels which may result in serious injuries or death. Foxes and raccoons may be kept in pairs from the time the young are weaned until the succeeding litter is a month old, providing the male is good natured; if inclined to be snappish, however, the male should be removed to his own pen before the young are born. The other carnivorous species are best kept singly except for a short time in spring. An animal that has killed its mate should never be trusted again unless deprived of its canine teeth.

Breeding pens should be thoroughly cleansed and disinfected throughout shortly before the young are expected. Foxes do not care for nesting material, but the smaller animals need it. If soft dry grass or leaves be placed in the yards, the animals will carry the material into their dens and arrange it to suit themselves. Unless the dens are shaded they will become very hot in the middle of the day and the young are likely to suffer. Special care should be taken to prevent unnecessary disturbances to the young while unable to leave the den, as these may cause the mother to carry her babies about in search of another den, and thus to maltreat and expose them beyond the limit of their endurance. An important point in the care of brood animals is to avoid anything that is out of the ordinary run of their existence. If possible, they should have the same treatment and the same keeper at all times. The keeper should see how the young are getting on from day to day, and he should prepare for this long beforehand by practicing, as a part of his regular routine, whatever operations may be necessary to accomplish this. By inspecting the dens daily he can establish a habitual course of action on the part of the animals which will disarm their anxiety when he essays to examine their young.

A useful auxiliary in any fur-raising establishment is the domestic cat, which is ever ready to adopt a family of helpless young animals, regardless of pedigree or relationship. Supporting a few extra cats on a fur farm is, in reality, the premium paid for insurance against loss or damage to the crop. In general, about the time young animals first appear at the entrance of the den they are old enough to drink milk and, therefore, to be weaned if necessary. If it is desired to have them become very tame and to make pets of them, this is the time to take them away from their mothers and bring them up by hand. In no case should they be allowed to remain with the mother long enough to make her very thin in flesh. As young animals are not inclined to be quarrelsome a number of them may be allowed to run together in a large inclosure during summer and early fall if several sleeping boxes and feed pans are provided.

The principles of heredity that apply to ordinary domestic animals apply also to these. Fine animals can not be expected from poor breeding stock. In selecting breeders, size, color, temperament, and fur should be considered. There are great possibilities of improving animals by selective breeding, and the common policy of culling the poorer specimens and keeping the best, if consistently practiced, will unquestionably result in breeds of much greater value than that of the wild stock from which they originated.

Diseases

The more common diseases affecting fur animals are enteritis or inflamed intestines, pneumonia, diarrhea, and degenerated kidneys, all of which may largely be prevented by judicious care in housing and feeding. Pneumonia results from exposure and is likely to attack animals that have recently been trapped or shipped. It rarely occurs when they are kept in dry and well-ventilated quarters. The symptoms of pneumonia are loss of appetite, dry nose, and rubbing of throat and chest on the ground. Very little can be done for

animals suffering with this disease beyond giving them clean, dustless bedding and keeping them in pens that are warm and airy but free from direct drafts. Diarrhea is caused by improper feeding. It should be the invariable duty of keepers to take note daily of the excreta of animals under their charge, and to change the diet of any showing signs of this disease. An excessive proportion of vegetable food fats and impure water; fermented or putrid food; and over-feeding are among the causes of this malady. A diet of milk, eggs, and fresh lean meat, given in moderate quantities, if begun promptly, is usually sufficient to correct any kind of bowel trouble. Animals that are allowed to become fat and remain so are almost certain sooner or later to die from degeneration of the kidneys. In its later stages this disease is characterized by emaciation, nervousness, and a bloodless appearance of the tongue and gums. When the animal has reached this condition there is very little chance of saving its life. This disease may be avoided by not allowing animals to become fat and by keeping those showing a tendency to do so mainly on lean meat, fish, and milk.

The peculiarities of individual animals will not be neglected by alert keepers. The moment one departs from its ordinary behavior, the reason should be sought. If a regular meal is refused or neglected, a day's fast followed by a change of food should be tried at once or sickness is likely to follow. Particular pains should be taken to give ailing animals a varied diet, clean water, and surroundings that are sanitary in every particular. Sick animals and those newly purchased should be kept in quarantine apart from the main yard for at least three weeks. There is very little use in dosing the smaller species. The tax on their vitality caused by their struggles outweighs the effects of medicine. Those the size of a fox can be treated with better prospects of success.

Injuries usually demand treatment. Shattered limbs should be amputated. Simple fractures will usually knit satisfactorily if the limb is set with splints. Wild animals taken in steel traps have survived, although maimed, after having had the injured member bathed with spirits of turpentine. An excellent antiseptic for fresh wounds is a three per cent solution of carbolic acid. Hydrogen peroxide is useful in cleansing sores and old wounds.

In handling animals requiring medical attention studious care and tact should be exercised. Minks, martens, skunks, and fishers, which are very strong and lithe, may be treated either in a small wire cage or in a slightly tapering funnel or cone of wire netting, into which they are driven until they reach a point where they fit so closely they can neither advance nor turn about. They can be held there by a stick thrust across the funnel behind them. Larger animals are usually picked up by the base of the tail or by means of special tongs made to clasp the neck. They are frequently rolled in a blanket or gunny sack to keep them from biting or scratching. Whatever is necessary to be done should be undertaken quietly after due preparation.

Care of Skins

The first step in the care of skins is involved in the killing. Skins of animals slaughtered by a blow are thickened and bloodshot at the spot where the blow falls. A bullet through the brain from a .22 caliber rifle kills an animal instantly, causes no swelling of the skin, and results in very little blood stain on the fur. The best results, however, are to be obtained by means of an anesthetic, as carbon bisulphide or chloroform, introduced into a clean, well-made box having a tightly fitting cover. This method of killing is humane and leaves the skin perfect. The more valuable

animals, at least, ought always to be killed in this manner, as blood stains detract from the value of fur.

There are two ways of skinning fur animals, depending upon the shape in which the pelt is to be marketed. Beaver skins are always stretched flat, in a nearly circular shape, both the hair side and the flesh side being thus made available for inspection. They are cut on the underside from chin to tail and from each foot along the inner side of the leg to intersect the main opening nearly at right angles. The customary way of stretching a beaver skin is to lace the edges to a wooden hoop having a diameter somewhat larger than that of the skin. This produces what is called a flat skin. Pelts from the other animals under discussion are cut only along the underside of the tail and from heel to heel across the posterior end of the body, the skin being turned inside out as the body is withdrawn. The tail, feet, and bases of the ears are skinned out with care.

Such skins are drawn, flesh side out, over a tapering piece of board, the shape and dimensions of which permit them to dry in their natural size and proportions without wrinkles. The forward end of a stretching board should be reduced to a narrow tip that will project through the mouth of a skin half an inch or more. When a skin is dry and shrunken, a blow from a hammer on this projecting tip will loosen the board, which otherwise could be removed only with difficulty and danger to the skin. Stretching boards are sometimes cut lengthwise in three pieces, or strips, the middle one being a wedge, which makes them adjustable to skins of different size and easily removed after the skins dry. Skins thus prepared are called "cased skins." They should be dried in a cool, shady, airy place without artificial heat unless in a climate so damp that drying without heat is impossible. Even then care should be taken to prevent overheating. Fox skins are removed from the boards and turned hair side out before they are entirely dry. Other kinds of cased skins are sold flesh side out. All skins should be divested of loose fat while they are fresh, and those impregnated with fat, as skunk skins, should be disposed of promptly. The effect of fat on skins is to harden and break down the tissue, making them brittle and worthless. Fox skins and others that are thin, firm, and not greasy may be kept safely in cold storage or in insect-proof cabinets lined with sheet metal, tarred roofing paper, or other suitable material. The cabinets should be kept in a cool place and so built that the skins may be hung by the nose, and not laid in piles, as piling has a tendency to lessen the fluffiness of fur.

If one wishes to dress his own furs the following recipe for a tanning liquor may be used, but time and patience are required to produce soft, pliable skins, as the process is largely one of manipulation: To each gallon of water add one quart of salt and a half ounce of sulphuric acid. This mixture should not be kept in a metal container. Thin skins are tanned by this liquor in one day; heavy skins must remain in it longer, and will not be harmed if left in it indefinitely. When removed they are washed several times in soapy water, wrung as dry as possible, and rubbed on the flesh side with a cake of hard soap. They are then folded in the middle, hung lengthwise over a line, hair side out, and left to dry. When both surfaces are barely dry and the interior is still moist they are laid over a smooth, rounded board and scraped on the flesh side with the edge of a worn flat file, or a similar blunt-edged tool. In this way an inner layer is removed and the skins become nearly white in color. They are then stretched, rubbed, and twisted until quite dry. If parts of a skin are still hard and stiff, the soaping, drying, and stretching process is repeated until the entire skin is soft. Fresh butter or other animal fat

worked into skins while warm and then worked out again in dry hardwood sawdust, or extracted by a hasty bath in gasoline, increases their softness.

Co-operation of Breeders

Breeders of fur animals should bear in mind that co-operation is the keynote of progress. If breeders of ordinary domestic animals find it advantageous to form associations for mutual help and encouragement, how much more will it be to the advantage of fur farmers, who are dealing with a group of animals new to domestication, to contribute their individual discoveries to the common fund of information, meet one another, discuss methods, adopt breeding standards, and unite in an effort to place their specialty in a proper light before the public, for there is considerable misapprehension regarding the character of their work.

Much of the improvement that has taken place in the various kinds of live stock has been due to the object lessons afforded by public exhibitions. The breeders of fur-bearing animals can help themselves individually and collectively by consistently preparing their finest specimens for exhibition at fairs and shows where people interested in animals assemble.

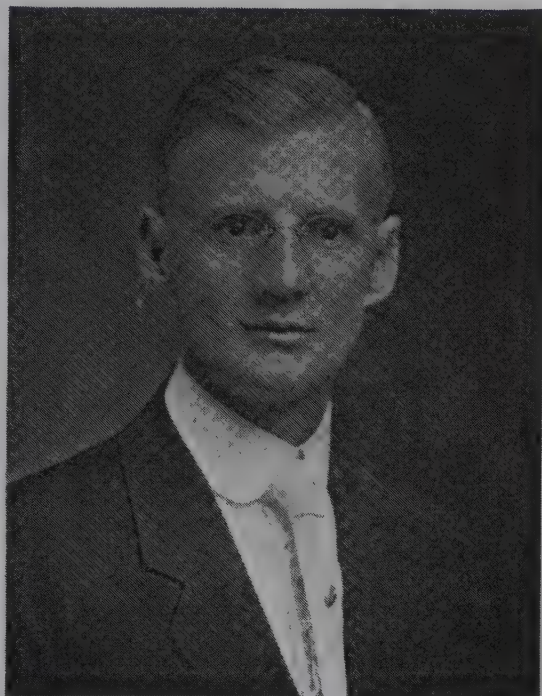
Too often the project to domesticate fur-bearing animals has been judged superficially. For example, the possibility that persons having animal pens may become poachers and capture young animals in the close season simply for the purpose of killing them for their pelts later in the year has frequently outweighed in many minds the palpable impossibility of satisfying the demand for fur by any means other than the domestication of fur bearers, and the practical certainty that as fur farming develops the present tireless pursuit of wild fur animals will decrease. As a result, fur farmers in certain States have been obliged to pay annual license fees, to give bonds, and to submit to various restrictions in the sale of breeding stock. In other States, however, the owner of a fur farm has exactly the same property rights in his animals and the same freedom in the conduct of his business as the owner of a sheep ranch or of a poultry farm. The cause of the fur farmer is intrinsically sound, and those interested in it have only to unite and fairly state it to gain popular support.



A PAIR OF BLACK BEAUTIES

"Canada's Fur Harvest yield for 1920 season is \$21,197,372."—N. Y. Times, July 5th.

Monjo, Murley and Hennessy is the name of a new fur brokerage firm recently located at 36-38 West 25th Street, New York City. The firm is composed of Albert J. Monjo, formerly connected with the American agency of A. & W. Nesbitt, Ltd., Sidney H. Murley and Frank J. Hennessy.



E. L. RAMSFORD

Vice President, National Silver Fox Breeders Association of America

Mr. E. L. Ramsford, vice president of the National Association, came to Muskegon in 1915 from Indiana, where he had been in the Insurance and Real Estate business for twenty years. After coming to Muskegon he began to raise fruit and was meeting with success but when he heard of the wonderful opportunities that fox farming had to offer he began to investigate, with the result that in 1918 he purchased two pairs and in 1919 he began to build his ranch. From this small start he now has twelve pairs. He is one of the very few who can boast of never having lost a fox, neither has he ever had a sick fox on his ranch. This is undoubtedly due to the way in which he handles these valuable animals. He maintains the most sanitary conditions possible on his ranch, and makes a careful study of the requirements of each individual fox in regard to food, etc.

His ranch, The Camp Roosevelt Silver Black Fox Co., overlooks Lake Harbor, a popular summer resort, one half mile from Lake Michigan, and about five miles from Muskegon. His pens are located in a well developed grape vineyard, which provides the natural food the fox requires during the development of the pup as well as the seclusion, which means contentment.

Mr. Ramsford has been very active in civic and club affairs, having served on the County Board of Supervisors until his fox business made it necessary for him to withdraw. He is a member of various Masonic bodies and the K. of P., a member of the Farm Bureau Executive Committee, secretary to the local Grange, and takes a keen interest in all his community activities.

Mr. Ramsford is one of our most enthusiastic members and a great booster for the industry. It would be hard to get along without him.

NEWS NOTES

Items of Interest Picked Up Here and There for Benefit of the Industry

Robert Thomas Moore, proprietor of The Borestone Mountain Silver Fox Ranch, Onawa, Maine, was a visitor at the ranch of The Adirondack Mountain Silver Black Fox Co., Inc., at Remsen, N. Y., on Sunday, July 3rd. Mr. Moore was on his way East from a trip to some of the ranches of the Western States. He expressed himself as delighted with his trip and with the wonderful strides being made in the industry.

The Hogle Silver Fox Farms of Malone, N. Y., have favored this office with a copy of a splendid advertising card. On one side of the card is a map of the railroad line running from different parts of the State to the Hogle Silver Fox Farm, also a splendid half-tone cut of two fine foxes. On the reverse side of the card is the number of miles from New York City to the Hogle Silver Fox Farm, also the number of miles from each City and Town of any size in New York State from New York City to the Hogle Silver Farm. The card is splendidly gotten up and ought to be a source of good advertising, as well as a convenient card for the vest pocket.

The Saginaw County Agricultural Society, Inc., of Saginaw, Michigan, will hold a demonstration of fur farming at their annual fair, to be held September 12th to 17th inclusive. All interested in fur farming are urged to attend this fair and further information regarding it may be obtained by addressing W. J. Morgan, Secretary and Manager, at 209 Goeschal Building, Saginaw, Michigan.

"Hudson's Bay Company announces dividend of forty per cent on common stock, annual report shows big losses in fur, recouped in other lines. Indications from the report are that the company has made a drastic revaluation of all stocks during the last twelve months. The ability to pay out forty per cent on one million pounds of common stock in addition to five per cent on two million pounds of preferred stock, gives rise to the belief here that huge profits were made by the Company during 1920 on its land holdings as well as on its liquor transactions."—By cable from London Bureau to N. Y. Daily News Record, July 26.

The Tanana Alaskan Fox Farm advises this office that they are the only people now at Steamboat Springs, Colorado, engaged in fur farming. They wrote requesting a sample copy of the "AMERICAN FOX AND FUR FARMER."

The Raven Silver Fox Corporation, is a new concern in the fur farming field. The main office is at Utica, N. Y., and the Ranch is at North Croghan, N. Y. It covers 108 acres, has the necessary buildings on it and 20 pens in course of construction. They have contracted for 20 pair of "pedigreed" Black Silver Foxes, delivery to be made on or before October 10th, and made an agreement with an experienced fox man to superintend. In view of the fact that the history of these enterprises has been invariably successful and that in this particular instance conditions are ideal, there is no reason why they should not duplicate the success of their predecessors.



H. A. BANKNECHT

Treasurer and Former President of the National Silver Fox Breeders Association of America

Muskegon, Michigan

Mr. H. A. Banknecht, Treasurer and former President of the National Silver Fox Breeders Association is one of Muskegon's leading business men. He is a member of the firm of Banknecht Brothers, well known coal merchants of Muskegon. He is also interested in many of the local industries of the City. Among them he is director of the Hackley National Bank, and Vice-President of the Michigan-Ohio-Indiana Coal Dealers Association of America. He is a member of a number of Masonic bodies, The Elks, Eagles, and M. W. of A. He is very fond of fishing and trap shooting and indulges in these sports whenever an opportunity presents itself.

Mr. Banknecht has closed out his interest in the fox business but still takes a very active part in the affairs of the Association. His good judgment and business ability has been a big factor in putting the National Association on a broad and sound basis.

QUESTIONS AND ANSWERS

This Department is open to our readers for the asking and answering of any questions connected directly or indirectly with fox and fur farming. It is not the intention of the Editor to answer these questions from the office of the publication, but rather to allow our readers to answer them from their wide and practical experience in the industry. Answers sent in care of the publication will be promptly forwarded to the one making the inquiry.

QUESTION. How many different kinds of living animals are there?

ANSWER. An estimate has been made which gives a grand total of 866,000 distinct species.

TWENTY PAIRS OF FOX PUPS SOLD

From Utica Daily Press, August 4, 1921

The Central New York Fur Company of this city has sold twenty pairs of five months' old fox pups from its Boonville ranch for \$25,000.

The purchaser was the Raven Silver Fox Company, also of this city, which is in process of establishing a fox ranch at Natural Bridge, east of Carthage.

This is the largest transaction of this kind that has ever taken place in this section and was consummated between the parties yesterday morning.

Only a few years ago there was not a fox ranch in this entire region and this sale indicates to what proportion the fox breeding industry has grown in Central New York.

The foxes purchased by the Raven Company are to be delivered to its ranch at Natural Bridge October 10. The company has acquired 100 acres at that place and the ranch is practically ready for occupancy. It has been fenced in and the pens are in process of erection. It will have a capacity of twenty pairs and thus starts out with a full quota. Some of the wealthiest men in Northern New York are interested in the project.

This is the first sale made from the Boonville ranch, which has been established only a little over a year. The pups were bred on this ranch and are in fine condition. The Boonville ranch was established with forty pairs, purchased on Prince Edward Island and selected from twenty-three different ranches in that country, this being done in order to secure the best possible breed.

The Boonville ranch has grown through breeding until it now has 254 foxes and is said to be the largest single ranch in the United States, also the best located and equipped. The foxes range in ages from five months to two years.

The first litter at the ranch was born last spring and numbered 119. One fox had a litter of six foxes, but the average is from three to six.

Dr. W. A. Young, former city veterinarian, is in charge of the ranch. He devotes his whole time to the business and has had fine success in caring and breeding the animals, as the big sale of yesterday attests. He spent seven months on Prince Edward Island studying the life of the fox and how to breed him successfully.

The company has invested in the Boonville ranch no less than \$250,000. Its equipment consists of plant, refrigeration, building, water and electric light systems, houses and barns.

The United States Department of Agriculture advocates fox raising on a small scale in connection with farming, the same as hog and poultry raising and other side lines of the farming business.

The announcement of a sale of such proportion as that consummated yesterday, when \$25,000 was involved, will call attention anew to the fox industry in this section, especially when it is learned the amount of money which is invested in the business. Besides the ranch at Boonville there is a ranch at Remsen, the latter being the first established in Central New York.

Conducting business without advertising is like running an automobile on low—it can be done, but who wants to travel on low?

Insist on perfect harmony among your working force. Promote this spirit by the right sort of leadership, fellowship, unity of purpose, desire for growth, and understanding.



ALEXANDRE'S AMERICAN BROADTAIL COAT
TRIMMED WITH SQUIRREL COLLAR
AND CUFFS

Manufactured by J. H. Herbst & Co.

Courtesy of "Fur Trade Review," New York City

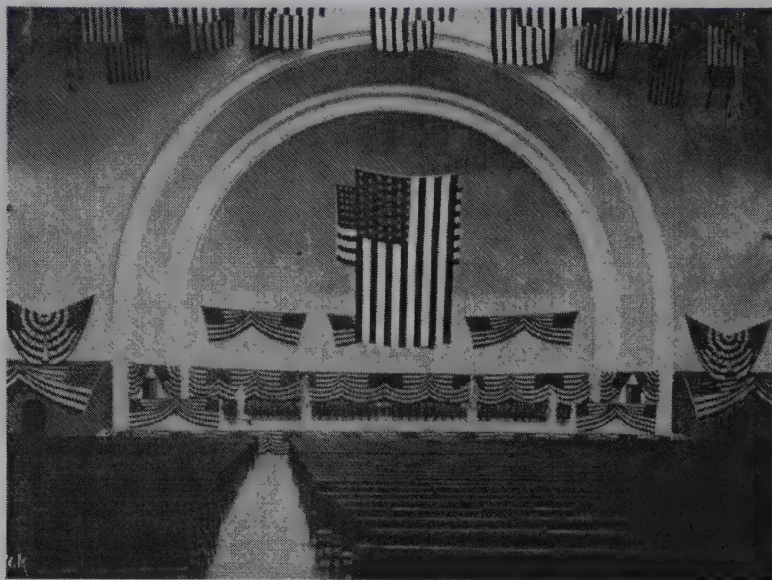
Boston, Mass., April 14, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I think it fine that you are going to publish the "American Fox and Fur Farmer." It is needed and will, I am sure, be a success.

Yours truly,
SAMUEL F. WADSWORTH, M. D. V.



STAGE OF AUDITORIUM, MUNICIPAL PIER, CHICAGO. SCENE OF
THE FASHION SHOW, PAGEANT OF PROGRESS

Courtesy of "Fur Trade Review," New York City

FROM OUR MAIL BOX

A Few Letters Selected at Random from Our Mail—Evidently Our Efforts are Appreciated

Boston, Mass., August 2, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

Your first issue of the "AMERICAN FOX AND FUR FARMER" is a splendid number and I think it will make many friends for you. Yours truly,

GEORGE A. BRACKETT.

Wilmington, N. Y., August 3, 1921.

American Fox and Fur Farmer
Utica, New York

Dear Sirs:—

We were very much pleased with the first issue of the magazine and will support a magazine which is strictly in the interest of the American fox breeder.

Our advertisement will be ready for the September number.

With best wishes, we remain,

Very truly yours,

NORTH WOODS SILVER FOX FARM CO., INC.
Per C. L. Durgan, President.

Shingle House, Pa., August 3, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I thought the first issue was fine and mean to soon subscribe. All success to you.

Very truly yours,

L. D. SIMPSON, D. D. S.

Lake City, Minn., July 8, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

Enclosed find check for \$3.00 for subscription to your magazine and surely wish you every kind of success with it, and hope that you do not show any partiality as some other magazines do, and I can assure you that we will do our share of advertising with you.

We have the largest silver fox ranch in the United States and possibly in the world, and surely have a bunch of them to offer this season, as our foxes averaged four and one-half pups to the litter.

Yours very truly,
REST ISLAND SILVER FOX COMPANY.
Per Arthur Sleicher.

New York City, July 12th, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I have your favor of July 7th and wish your paper and enterprise the very best of success.

I am looking forward with pleasant anticipation to reading your initial number for the month of July.

Yours very truly,
J. S. HANSEN.

South Ryegate, Vt., July 27, 1921.

American Fox and Fur Farmer
Utica, New York

Dear Sirs:—

The first issue is all to the good, and I wish you the greatest success.

Yours truly,
GEORGE S. TUTTLE.

Muskegon, Mich., July 25, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

Your first issue just came to the office this morning and I knocked off work long enough to read it.

I wish to sincerely congratulate you on the very evident high quality of the magazine. If you continue to live up to the high standard you have set yourselves in this first issue you will indeed render a service to the American ranchers and to the fox industry.

Your articles are really interesting, as well as valuable, and I believe that if you continue as you have started your paper will be by far the best advertising medium in the business.

I have already sent you copy for a quarter page ad in your next available issue and am enclosing my check for \$3.00 for a years subscription.

Yours sincerely,

J. CAPUANO,
Great Lakes Silver Black Fox Co.

Woodfords, Me., July 25, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I have been reading some of the reports in your publication. I thought possibly you would like to hear from some ranch in the State of Maine.

I am care-taker for The Fidelity Silver Fox Co., located at Woodfords, Maine. We have a nice lot of 1920 pups, sixty-three in number. I have very little trouble in raising the young. I feed tripe, horse meat, liver, rabbits eggs, milk, fox bread, and I also make a bread of my own which they like. I always keep fresh water before them all the time.

Yours respectfully,
U. G. LOVEITT.

Penacook, N. H., July 23, 1921.

American Fox and Fur Farmer
Utica, New York

Dear Sirs:—

Your first issue just to hand and I wish to congratulate you for getting out such a splendid paper. I have read every article with great interest. Please find my subscription for one year, which kindly send to my New York office, and oblige.

Respectfully yours,
JAMES S. HANSEN.

James S. Hansen, the Silver Black Fox man, with offices at 136 West 31st St., New York City, advises us that he is up at his ranch at Penacook, N. H., looking things over and at the same time giving Joseph J. Hug, his rancher and manager, a little rest.

York, Pa., July 29th, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

We wish to acknowledge receipt of the first number of your publication and must state that it is one of the best along its particular line that we have ever had the pleasure of looking through. Wishing you success, we are

Very truly yours,
"NATIONAL FANCIER,"
Per Ellis F. DeLancey.

Superior, Wis., Station B., July 28, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I am in receipt of the first issue of the "AMERICAN FOX AND FUR FARMER" and hasten to express my appreciation to the publishers.

The information contained therein and the adoption of their impartial standard will be most valuable to the fox and fur industry.

I enclose check, payable to your order, for \$3.00 to enter my subscription to the "AMERICAN FOX AND FUR FARMER" for one year, beginning with the July issue.

Yours sincerely,
MATT PINNELL.

Muskegon, Mich., July 29, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I want to congratulate you upon your first issue of "The American Fox and Fur Farmer." I was very much pleased with it and that seems to be the opinion of everyone with whom I have talked about it. I realize that it was no easy matter to get out this first issue, but now that the public know what you have to offer I can see a great future for this publication if it continues to maintain the standard set in the first issue. I wish it the best of success.

Very truly yours,
J. E. SMITH,
Secretary, National Silver Fox Breeders
Association of America.

Pomin's, Lake Tahoe, Calif., July 21, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I am very anxious to see the July edition of the "American Fox and Fur Farmer" and wish you would kindly mail me one.

Wishing this publication the very best of success, I remain

Very truly yours,
WILLIAM L. LEWIS,
Tahoe Silver Fox Farm.

KARAKUL SHEEP

The Karakul Sheep industry in America is becoming quite firmly established. Since the holding Company, which kept control of all of the females was dissolved, and both male and female sheep are being sold, the general public have taken much more interest in Persian Lamb Fur production.

The grade skins marketed have brought good prices.

The Company now owning the pure-bred, registered Persian Fur ewes, is the American Karakul Fur Sheep Company. The board of directors is comprised of some of central New York's best known business men. Hon. Levi S. Chapman, Hon. Thomas K. Smith, William F. Rafferty, Charles E. Chapman of Syracuse and F. E. Dawley of Fayetteville.

Make liberal use of advertising, but be sure that the publicity for which you pay is directed toward the right people, is skillfully prepared and well placed.



DR. G. W. RUSSELL

Dr. G. W. Russell, whose picture appears above, is another of our members who has done a great deal in helping to get the Association started in the right way. He is a very prominent dentist in the city of Muskegon, but saw the wonderful possibilities the Silver Fox Industry had to offer and took advantage of it. He is contemplating starting a fox ranch in the near future. He was one of the men on the committee to draft the constitution and by-laws of the association and has been a big booster for the association and the industry at large. We feel sure that when the Doctor gets started on his ranch he will be a success, as his professional experience will go a long way in helping him to combat and prevent the various diseases peculiar to foxes.

CORRESPONDENCE

Utica, N. Y., August 6th, 1921.

American Fox and Fur Farmer
Utica, New York
Gentlemen:—

You no doubt will be interested in knowing about the fox industry in the State of Michigan. During my visit of ten days in and about Muskegon I find, through investigation, that there are in the neighborhood of some forty ranches within five or ten miles of that City, and the number of people interested would aggregate about 200. The number of foxes in this immediate vicinity, I have been informed, will average 2,000 in round numbers. This particular place in Michigan undoubtedly is the center of the

fox industry in the United States for there are, according to Government figures, 215 ranches throughout the United States, and, as I have stated above, there are forty surrounding the City of Muskegon.

The chief industry, excepting the fox, is that of manufacture. As one who is an expert in the fox industry and has one of the largest ranches said to me: "The only thing that the land surrounding Muskegon, its only value was that in raising foxes," for I noticed that there was very little agricultural development, the soil being of a sandy nature throughout.

While there I visited a number of ranches. I noticed how particular the owners were relative to the sanitary conditions. I found the majority very neat and clean. The foxes seem to be thriving and doing nicely. I saw quite a number of some very splendid specimens of foxes. The ranches vary. Some of them are square, with dimensions from 7 ft. wide to 40 ft., and from 25 to 68 ft. in length. The majority of new ranches now being built are of the circular kind. The dimensions of these particular ranches run from 7 to 12 ft. wide, with slanting side walls 8 ft. high, 5 ft. to 7 ft. at top, 68 ft. length (wire over top) with a divide of 34, for the purpose of separating foxes at times that it may become necessary, and I believe this, particularly in the slanting wall, is quite advantageous to each fox rancher from the standpoint that it prevents foxes from climbing, where oftentimes accidents have been known to occur and a number of foxes having been killed which means undoubtedly a loss of many to the rancher. This all can be eliminated by this particular design.

The majority of ranchers seem to have little or no trouble in disposing of their foxes. The prices obtained by these various ranches will run from \$2,000 to \$2,500 a pair. Where they secure the latter, they will guarantee double.

I find that the doctor, the lawyer, the barber, the hardware man, in fact all classes are interested in the industry and are the owners of ranches and foxes in this community. Everyone seems to be pleased with the results they have obtained.

It was my pleasure of meeting fifty to seventy-five of these people, finding each one to be most congenial, pleasant and I believe men in whom anyone could have confidence. The courtesies shown by each have never been surpassed in my history of travel heretofore. Everyone seemed to be anxious and willing to show you their ranch, tell you about their troubles, and their foxes, and everyone seemed, as I know and understand, are willing to co-operate with the other—a feeling that I hope to see displayed by all ranchers of the country, because I believe it will be a very helpful thing to those engaged in the industry.

Just before leaving Muskegon I was informed of at least six or eight new ranches to be erected within the next three or four months. Two or three of them have already been started; so that you can see that the industry is not going backward, but is advancing.

I had the pleasure, while there, of meeting Mrs. Eva Gordon, a most successful fox rancher, she being the only woman, to my knowledge, in the United States who gives her entire time to this industry. She is not only pleasant but exceptionally congenial and her knowledge in the industry should be appreciated by those who are fortunate enough to come in contact with her. She informed me that she has, within the last year, moved from Muskegon to Traverse City, where she has built a new ranch, having, as I understood, in the neighborhood of ninety pair of foxes, although she claims she has sold a number of foxes in addition to what she still has on her ranch.

All those whom I came in contact with are very much in favor of one Association in the United States, as well as one standard, to be supported and recognized by the United States Government.

The regular monthly meeting of the National Silver Fox Breeders Association was held in the Armory, Muskegon, on August 3rd. There were in attendance from 35 to 40. Among the number there was Mr. Frank F. Tuplin, who claims to be one of the original fox men of the world. There were also present Mrs. Gordon from Traverse City, and a representative from the Chamber of Commerce, stating that the Chamber of Commerce was willing to assist in the industry and do whatever was possible for them to assist all, along this particular pursuit.

I should think it would be very helpful if every man in the industry could visit and see for himself just what magnitude the industry is gaining in this particular State. The people of Michigan as a whole seem to be very much in favor of our publication and have agreed to support it in every possible way, for which we should all be very thankful. I feel my trip to Michigan has been and will be helpful, as it would also be to any others who might see fit to make the same trip.

I might mention at this writing that one of the things very prevalent to my mind was the under-ground house that has been adopted by all with whom I came in contact. This was designed and used the first time by Mrs. Gordon of Traverse City. I was informed while there that Dr. Nelson, Chief of the Bureau of Biological Survey, Department of Agriculture, has visited practically all of the ranches, as has also Lieutenant Ashbrook, he having visited there within the past week or two, and has made some very favorable reports.

The general fox rancher seems to be of the opinion that there is too much secrecy in the fox industry and would be very glad if this could be overcome, whereby all could be benefited.

The National Silver Fox Breeders Association are at this time planning and making preparations for their December Fox Show, to be held in the Armory, Muskegon, in the State of Michigan, and with the pep that they displayed while I was there I am quite sure that they will have a very large number of foxes exhibited at this particular Show. Everyone seems to be on the job, which is encouraging, and shows the interest they are taking in the industry, which I was pleased to note. My trip was the most enjoyable one that I have ever had, the people in general being most hospitable, congenial and friendly, showing a desire to help a good cause along at all times.

Very respectfully yours,
C. L. ROBINS.

TEMPERAMENT

By GEORGE A. BROCKETT, Boston, Mass.

An article on Temperament in foxes, written by George Brackett, was published about a year ago in the Black Fox Magazine. In the July issue of the American Fox and Fur Farmer, there is an article written by Perry A. Cole, on Taming Foxes; also the following piece entitled "Music in the Zoo," and published in the July issue of Popular Science Magazine, reads as follows: "The old saying that music has

charms to soothe the savage beast may be true in some cases, but a recent demonstration at the Central Park menagerie in New York City, failed to prove its truth in the case of caged animals. When some musicians, playing wind and string instruments, appeared before the cages, the animals sat up and took notice—at first. Then most of them became restless. The large crowd of onlookers may have had something to do with their excitement, as well as the noisy jazz, which seemed to arouse the animals.

According to Dr. E. L. Scott, of the Department of Physiology of Columbia University, one of the scientists present at the experimental demonstration, the results as a whole did not indicate that the musical noise had a pronounced effect, although the behavior of some of the animals was unusual. The polar bear exhibited astonishment when the trombone and clarinet began a duet. The bear at first sat up in the attitude of a dog when it begins to howl. Its jaws opened, and there was a nervous, trembling movement of the cheek muscles, and he looked as if he would like to howl if he could. Instead, he stood up and began to sway excitedly from side to side in a curious kind of dance. A small tame wolf in an adjoining cage at first ran into its den under cover, then came out and ran wildly around, panic-stricken.

The elephant was the most indifferent of all the animals. He was perhaps sagacious enough to know at once that the whole thing was a joke. That a dog is keenly sensitive to music is well known, but what are the emotions aroused? Does it howl for joy or for pain? Are some primitive emotions awakened that touch its racial memory and bring back the mystical terror of the wilderness, the same emotions that make a wolf howl in the wistful loneliness of the moonlight? These are questions that future experiments may help solve."

Persuant to the above, a fine litter of valuable Silver Fox pups, were lost at the ranch of George O. Bartlett, Wrentham, Mass. The ranch is about one and one-half miles from the Town proper, but the pens set close to the State Highway over which there is a continual passing of automobiles and vehicles of every character, also electric street cars. The foxes apparently became accustomed to this routine of passing conveyances and did not seem to mind them. However, early this spring a Hurdy Gurdy passing by on its way to the town, stopped within 150 feet of the ranch, and began playing. Mr. Bartlett was away at the time and on his return was told that the foxes had been racing during the time the Hurdy Gurdy was playing. Upon investigating, he found that his first litter of the year was gone from the house, and, out in the yard several mounds of earth, each containing one of the pups, unhurt, as far as any injury caused by the mother fox, but smothered to death. The mother in her fright, caused by the music from the Hurdy Gurdy, having tried to hide her offspring from harm.

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J. E. SMITH

Secretary, National Silver Fox Breeders Association of
America

Muskegon, Michigan

J. E. Smith, Secretary of the National Silver Fox Breeders Association, Muskegon, Mich, spent the early part of his life at Beulah, Benzie County, Michigan, finishing high school there in 1912. The following year he attended Macalaster College, St. Paul, Minnesota. The next two years he worked in Minneapolis and Grand Rapids, Michigan, then went to the Central Michigan Normal at Mount Pleasant, finishing in the summer of 1915. That fall he accepted a position as instructor and athletic director at Newaygo High School, was married and remained at Newaygo until he entered the service in 1917. He was discharged in February, 1919, and finished the year at his old position in Newaygo High School. Shortly after, he moved to Muskegon where he first heard of the Silver Fox Industry. It appealed to him so much that when the position of secretary was offered him he accepted at once. He is now trying to serve the two hundred members of the association the best he can, but finds that it is impossible to please all of them all the time.

Mr. Smith has always been a great lover of all kinds of sports especially base ball, foot ball, basket ball and tennis, and although he has a family he still indulges in them whenever he has an opportunity. He says, however, that he believes the fox game is the best game of all.

NEWS NOTE

The American Fox Breeders Association have moved their headquarters from 53 Devonshire to 229 Congress St., Boston, where they should be addressed in the future.

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MAINTENANCE OF THE FUR SUPPLY

By NED DEARBORN

Formerly Assistant Biologist, Bureau of Biological Survey, United States
Department of Agriculture, Washington, D. C.

To direct attention to the great commercial importance of fur; to emphasize the need of maintaining the supply, which lately has been declining at an alarming rate; and to point out ways by which this supply may not only be maintained as to quantity but improved as to quality, is the purpose of this circular.

The subject is discussed from the viewpoint of the farmer, to whom fur-bearing animals, if rightly managed, will be a source of interest and profit. The farmer should know that peltries are prime only about two months in the year, and that it is as unwise to take them when unprime as it is to harvest unripe or overripe fruit. He should know, also, that while foxes, skunks, minks, and several other small fur bearers are carnivorous, very few of them ever taste the flesh of poultry; the farmer who kills these animals at every opportunity will, if consistent, kill his poultry whenever a few hens raid his garden. Among fur animals, as among men, the proportion of criminals is relatively small.

The unprecedented prices lately paid for peltries make this an opportune time to urge a reasonable and practical attitude toward fur bearers on the part of the farmer, who actually controls the animals living on his property, although he is subject to the same laws as are other people, so far as capturing them is concerned. When once he accepts the fact that fur animals are worth tolerating—for he has neither to feed nor shelter them—he will take steps to secure a dependable harvest of fur every year. He will not permit poaching on his property and he will himself hold sacred the dens of the fur bearers. A hollow sycamore or oak, of no value for lumber and scarcely worth felling for firewood, may keep him in raccoon-skin overcoats. The returns from a fox den may easily be worth more to him than the income from a thousand-dollar Government bond.

The Fur Trade

The commercial history of America begins with fur, and from the early days down to the present this has been an important article in our domestic and foreign trade. There are few commodities in common use which distribute their benefits so widely. From the country boy who traps a few muskrats to the professional trapper patrolling a hundred miles of territory, the money received for pelts goes at once into various channels of circulation.

For upward of 300 years America furnished raw furs that were dressed and manufactured in Europe, many of them to be returned to this country for final use. Since 1914, however, the center of the world's fur trade has been transferred from Europe to the United States. The greatest fur sales in history are now being held here, and all branches of fur dressing, dyeing, and manufacturing are being successfully carried on by American enterprise. The amount of capital invested in the American fur trade is vastly greater than ever before, and many thousands of people derive their support from it. To both capital and labor it yields abundant returns.

Most of the fur goods produced in America are manufactured in or near New York City, where in 1918 there were about 60 dressing and dyeing plants, 500 dealers, 1,200

manufacturers, 18,000 operatives, and an investment estimated at between \$200,000,000 and \$300,000,000.

The effect of the World War on fur dressing and dyeing in this country is clearly shown by the change in ratios between the dressed and raw skins imported in 1914 and 1919, respectively. In 1914 dressed skins imported were worth \$3,500,000, while raw-skin imports were worth \$7,500,000, the ratio of dressed to raw being about 46 per cent. In 1919 we imported \$4,000,000 worth of dressed skins and \$69,000,000 worth of raw skins, the ratio between dressed and raw dropping to 6 per cent from the 46 per cent of five years earlier. Members of the Fur Dealers' & Buyers' Association of Greater New York in 1919 dressed \$27,000,000 worth of furs and dyed more than \$16,000,000 worth. It may be safely assumed that from this time forth America can readily dress, dye, and manufacture all the furs she can possibly produce.

The most striking fact relating to the fur trade during recent years is the rapidity with which values have advanced and the surprising heights they have attained. For many months it seemed as if the pinnacle had been reached, yet each succeeding sale set a new record. Not only did prices advance, but skins formerly regarded as having little or no value as fur became popular under various trade names. A comparison of the highest prices at the October sales in St. Louis in 1915 with those in 1919 illustrates the remarkable increase in fur values: Beaver advanced in these four years from \$17 to \$38.50, otter from \$14 to \$101, muskrat from \$0.36½ to \$5.10, red fox from \$15.20 to \$64, fisher from \$25.50 to \$205, skunk from \$3.36 to \$10.60, and marten from \$15.20 to \$145.

The crest of the rising wave of fur values was reached in the auction sales of February and March, 1920, when the following were the highest prices paid: Weasel, \$4.10; muskrat, \$7.50; skunk, \$12.25; raccoon, \$30; lynx, \$66; red fox, \$71; mink, \$75; otter, \$105; marten, \$201; and fisher, \$365. These inflated values, which involved an enormous amount of money for financing the fur industry, coming at a time when banks were showing an inclination to withhold credit, reacted on prices and caused a decline of about 25 per cent in the May sales of 1920, although they still averaged higher than in the spring of 1919. Fur continues to be fashionable, however, and while prices may decline somewhat, they probably will be prevented from going very low by the continued demand for fur and the reduced numbers of fur-bearing animals.

A concrete example of the rise in fur prices is afforded by the actual record of one man's fur-lined overcoat. This coat, lined with mink, in 1913 cost \$500. After wearing the coat two years the owner sold the mink lining for \$1,000 and replaced it with nutria at a cost of \$150. Two years later in 1917, he had the nutria lining removed and sold it for \$250. A muskrat lining was then put in the coat at a cost of \$55, which, in 1919, was in turn removed and sold for \$300. The original purchaser still has the shell.

Although fur garments bring what seems exorbitant prices, the trapper regards present fur values with the utmost complacency. A fur buyer in Illinois recently told of

two boys near Ottawa who trapped along the Illinois River during the winter of 1910-20 and sold \$1,000 worth of skunk, muskrat, and mink skins, and further stated that many other boys around the country did quite as well. Alaskan trappers, in 1918, sold furs valued at \$1,363,600.

Fur animals are profitable to the Government as well as to individuals. The sealskins taken on the Pribilof Islands by the Bureau of Fisheries in 1919, to the number of 27,821, were worth to the Government nearly \$4,000,000. From these same islands the Government harvested 938 blue foxes in 1919, the pelts having a value of \$165,000. The skins of bears, bobcats, coyotes, mountain lions, and timber wolves killed by predatory animal hunters of the Biological Survey in 1918 and 1919 brought nearly \$160,000, and since these operations began, in 1915, \$234,762 has been turned into the Treasury from this source. In California the asset value of wild fur bearers to the people of the State has been estimated at \$7,125,000, as the annual catch of fur in the State brings about 4 per cent of this huge sum. By proper conservation it might readily be doubled.

Although America still produces a large quantity of fur, about half the skins disposed of at American auction sales are of foreign origin. The total value of furs imported into the United States in 1919 was more than \$76,000,000. Our foreign trade in this industry is of no little importance, as fur is one of the few commodities that Europe can sell us. It is estimated that the money spent in America yearly for fur garments is well over \$100,000,000. The gross trade of fur merchants in New York alone during 1919, including exports, imports, and domestic trade in raw and manufactured furs, amounted to upwards of \$375,000,000.

Supply of Furs Waning

The traffic in fur is so extensive and profitable that fur dealers are taking definite steps to keep up the demand for it. The management of the largest auction fur sales company in America planned to spend \$100,000 during the year 1920 in a campaign designed to persuade people to wear fur at all seasons of the year. A prominent advertising agency was awarded the contract to direct this campaign through some of the most popular and widely circulated magazines in the United States.

This movement to stimulate fur sales will inevitably tend to intensify the pressure on fur-bearing animals, which have been gradually decreasing in numbers as a result of excessive trapping, clearing of forests, and draining of marshes. Already beavers and martens, two very important fur bearers, have been exterminated over a large part of the country. Even in Alaska, the last stronghold of fur bearers on United States territory, these animals became so scarce that complete protection for them for a term of years was advocated by Alaskan trappers. As a result of their express request a close period was declared and is still in force.

High prices of furs are equivalent to large bounties or rewards for killing fur animals, and unless steps to counterbalance them are taken immediately we may look to see these animals practically exterminated in many places. Reports from raw-fur buyers indicate that fur animals have decreased greatly during the last decade, several of the estimates running as high as 50 per cent. From some of the best fur regions in Canada come reports to the effect that fur animals are extremely scarce. A raw-fur buyer in Boston, speaking of muskrats, states that the supply in the winter of 1918-19 was 50 per cent short of normal and that of the following winter was 50 per cent less again. In the State of Wisconsin, trappers in 1917 took over 800,000 muskrats, in 1918 they took less than 300,000, and in 1919

only about 150,000. These decreases occurred in spite of the fact that there was an increase of 10 per cent each year over the previous year in the number of trappers' licenses sold. An Illinois writer in February, 1920, referring to the Kankakee River district, asserted that the fur-bearing animal supply could not possibly stand the amount of trapping induced by current prices for fur, and that if the present condition should continue for a few years the supply in settled districts would come to an end.

Protective Laws for Fur Animals

There is a loss of one-fourth of the full value of furs because so many of them come to market unprime. It is generally agreed that killing fur animals in the breeding season and before family groups break up and disperse in fall is a wasteful practice. In considering ways for preventing such waste the first course that has suggested itself is to invoke the aid of appropriate laws. Forty States have enactments establishing close seasons for fur bearers and 16 States have given rare and valuable animals, as the beaver, otter, and marten, the benefit of a close period covering five years or more. Inasmuch as comparatively few of the unprime skins coming to market come from the eight States without close seasons, it is evident that in some States at least the laws protecting fur animals are either ineffective or inadequate.

In many States the open season for trapping is too long. It should not cover more than two months. The open season for beavers and muskrats should not begin earlier than January, as these animals prime late, while for the other fur bearers it should not begin earlier than November nor end later than January. Uniform laws throughout the United States prohibiting traffic in unprime skins of American fur animals, excepting wolves and wild cats, would be salutary. Such laws would apply especially to dealers and would be welcomed by many of them; they are not only well aware of the need for more and better fur, but have under consideration the propriety of refusing to handle skins that are evidently taken out of season. The attitude of intelligent fur dealers toward trapping out of season is well illustrated by a full-page advertisement in a magazine devoted to rural interests, paid for by a prominent fur house, and entirely devoted to arguments for the capture of fur animals only when their skins are prime and for obeying laws protecting them. Proprietors and managers of large fur houses stand ready to support any reasonable movement to keep up the fur supply.

In several States the law provides that trappers must buy licenses in order to support a warden system for the enforcement of laws protecting fur animals. In a few States trappers are also required to report how many animals of each kind are taken. It would be well for every State to require such reports, as this is a convenient way of obtaining the statistics which are necessary to inspire people with a desire and a determination to make fur a regular and valuable farm and forest crop.

Results of Protection

Wild creatures quickly learn where they are safe from molestation, and in such places their fear of man disappears in a surprisingly short time. Wild waterfowl in city parks throng around visitors who feed them as if they were domesticated. The fact that animals very quickly learn to appreciate a sanctuary was forcefully brought out a few years ago at Buffalo Park, near Wainwright, Canada, when a protest was made by residents in the vicinity that the park was recognized as a haven of refuge by coyotes. When the farmers started to hunt them, all the coyotes made a bee-line

for the park, where they evidently knew they were safe. Wardens who patrol Jasper Park and the adjacent country in northern Alberta report that as soon as the hunting season arrives all the wild animals take refuge in the park.

A close period for beavers for several years past has virtually made a temporary preserve of an entire Province, so far as beavers are concerned. During the first open season the farmers there will probably harvest about 15,000 beaver pelts. Now, instead of having a catch of 15,000 the first year, a catch of 7,000 the second year, a catch of 3,000 the third year, and then another closed period for perhaps 10 years, suitable areas might be set aside where beavers and other fur bearers would be continually protected and from which would come an overflow that would furnish a reasonable supply of skins every year continuously.

A striking example of the benefits derived from setting aside a preserve for fur animals is to be found in Laurentides Park, in the Province of Quebec, where many people, in the habit of hunting in that region before the park was formed, found it very hard to keep out after it was set aside as a sanctuary. Finally, however, they held a conference and found on comparing notes that while they no longer entered the park they were handling three times as much fur as when they were admitted to it.

Fur Farming

The first landowners to appreciate the possibility of turning into ready cash the furs produced annually on their land were those in possession of marshes inhabited by muskrats. One of the most progressive of the muskrat farmers counts the muskrat houses on his marsh in fall and then decides how many animals may be safely captured and how many will probably be left for breeding stock. Marsh owners in Dorchester County, Md., harvest on the average from 100,000 to 125,000 muskrat skins a year. There is a market for the meat as well as for the fur. A single Baltimore firm handles from 25,000 to 30,000 muskrat carcasses each season and is unable to supply the demand at that. The best hotel in a Maryland town of a population of about 9,000 offers a choice on its bill of fare between muskrat meat, under the name of marsh rabbit, and roast beef. The price of muskrat carcasses as sold by trappers in the spring of 1920 ran from 25 cents each early in the season to 10 cents each near the close. Incidentally, these marshes, which formerly were considered to be practically of no value, now bring from \$30 to \$40 per acre.

Experiments in propagating fur animals in confinement have been tried with varying results. The World War interrupted them, but now the young men who carried them on are back on their farms again and have resumed their efforts. The Department of Agriculture has been experimenting along this line for several years. It has been demonstrated that silver foxes, blue foxes, skunks, and muskrats can be farmed profitably under suitable conditions.

For skunk farming it is necessary to have a reliable source of cheap food, as the value of skunk pelts is not sufficient to justify much outlay. In the case of foxes, the margin of profit makes it unnecessary to consider the cost of food. Minks have been bred in confinement, but they are not hardy and can not be handled successfully unless there is a reliable supply of fresh meat and fresh fish constantly at hand. Martens and fishers are hardy in captivity but can rarely be induced to breed. None of the other fur bearers have been tested enough to show whether they may be propagated in confinement. There is no doubt, however, that skins from domesticated fur bearers will continue to be used in increasing quantities, and that ultimately furriers must rely largely on them for the support of their trade.

Local Attachments of Animals

Each wild animal has a special range on which it lives and to which it becomes attached by association. In the same way an animal that is well provided for in confinement soon becomes contented and attached to its surroundings. Mink that have been in captivity for a few months have been known to return to their dens voluntarily after having escaped. Martens seem to do this invariably; at least numerous instances have been recorded in which they have returned to their cages and been recaptured.

A muskrat that had been kept in a cage for several months at the National Zoological Park, in Washington, was returned to its native waters in Rock Creek when cold weather came on, as it was not thought worth while to keep it through the winter. The morning after its liberation it was found back again on the hill near its cage, and it remained in the vicinity until finally it fell into a post hole and died.

A red fox that had been kept on a ranch with cross and silver foxes was turned loose, as its owner did not wish either to feed or to kill it. The guard fence surrounding this ranch consisted of a high board fence, the owner of the ranch living in a cabin within the stockade. Every morning, almost invariably, when the stockade door was opened the red fox was waiting to come in and visit its former comrades. After a little while it began to dig a den near the highest corner of the yard and spent about half an hour each day at work upon it. Apparently this fox came back from pure love of locality, as it received no feed at the ranch after its liberation, and after spending about an hour at the ranch each day it returned to the forest. Unfortunately for this fox its association with man led it to follow trails and rob Indian snares of rabbits, till finally its hide hung in an Indian wigwam.

Fur Animal Preserves

The attachment shown by animals for their accustomed range, their appreciation of sanctuaries wherein they are safe, and the increase shown by fur bearers that are well protected indicate that it is practicable to select large tracts of land of a suitable character and make them permanent fur-animal preserves, where dens and feed will be provided and the animals will be retained merely by their rations and their local attachments. Such preserves would soon become centers of radiation from which would come a constant overflow of fur bearers. Private preserves may be used to obviate some of the difficulties in the way of farming certain fur animals in small yards, either because of their failure to breed freely in confinement—as martens and fishers—or because the value of their skins is not sufficient to pay returns on the cost of building yards and attending to their daily needs, in which latter category fall skunks, raccoons, and opossums. The Forest Service, ever alert to husband natural resources, has proposed that National Forests be administered as fur-animal preserves jointly by the Forest Service and the State game officials for the benefit of the State. It estimates that the National Forests of Colorado can be made to produce \$100,000 worth of fur annually and that the forests of Wyoming can be made to produce as much as those of Colorado simply by conserving the wild animals already there. The report in which this suggestion was made incidentally brought out the fact that beavers are useful in storing water, which keeps the trout streams running during the dry season. In one instance cited, when the irrigation reservoirs had all been drained during a protracted drought and crops were drying up, beaver dams were opened on four different creeks in the mountains and sufficient water was thus obtained to tide the crops over until the fall rains came.

The characters of North American mammals and their geographical distribution are now well known. It is known, for example, that the largest minks come from northwestern Alaska, while the best furred minks are found from the Adirondacks to Nova Scotia and northward to Labrador; that the largest well-furred skunk is the northern plains animal, while the region in which the largest proportion of black, well-furred skunks are found extends from eastern Canada southward to Pennsylvania and northern Indiana; and that the so-called black muskrats of the fur-sales catalogues come mainly from the marshes of Chesapeake Bay.

It is thus possible to stock preserves with animals of the very highest quality from the regions where such animals are found, or by culling out the poorer specimens in localities where more than one grade is found, as in the case of skunks. It has been estimated that a year's catch of skunks in New York State is worth \$1,000,000. Only one-fifth of them are black or short striped. If all were of this higher grade they would be worth \$3,000,000. Experiments in breeding skunks have shown that black parents regularly produce black offspring. A preserve stocked with black skunks would eventually double or treble the value of the catch of skunks in the territory surrounding it.

Furthermore, skunks are the best wild-animal friends the farmer has, and there ought to be at least three times as many of them as there now are. Almost any farmer might have two or three dozen skunks at work for him destroying mice, grasshoppers, crickets, and white grubs and furnishing him from \$50 to \$100 worth of fur a year, if he would but respect their dens, keep his poultry in skunk-proof yards, kill an old horse for them every fall, and be tactful when he meets them in the evening.

Federal, State, and private preserves might be stocked with fur bearing animals, as public and private waters are stocked with fish. The Federal Bureau of Fisheries and numerous State fish and game commissions, fish hatcheries, game farms, and game preserves have been established for the benefit of sportsmen and of those who handle and consume fish. The results of these movements for increasing the supply of game and fish certainly justify the adoption of similar means for multiplying fur-bearing animals, especially when the relative importance of fur and game, from the industrial and commercial point of view, is considered.

Objections are likely to be raised by poultry raisers and sportsmen against a proposition to increase the numbers of fur animals, several of which are more or less carnivorous. The poultryman's objection may be fairly met by the fact that he can use dead fowls as bait for these animals, and easily catch enough fur to pay for vermin-proof poultry yards. The abundance of both fur and game prior to the advent of firearms and steel traps proves that fur animals are not fatally antagonistic to game.

Summary

Directly or indirectly, fur contributes to the support or comfort of a large proportion of our population. We import as much fur as we produce. In other words, we could sell at home twice as much fur as we are now producing—not to speak of the foreign demand.

The greater part of the fur grown in the United States comes from privately owned land. Landowners can increase and improve the fur taken on their property and make of it a regular source of income.

A few species of fur-bearing animals have been domesticated, but with the single exception of the silver fox, none are being farmed extensively enough to influence the fur market.

Laws protecting fur bearers are helpful; at present, however, they are not preventing the animals from decreasing in number. There would be better fur and, in the long run, more of it if the open season were not more than two months long.

From what is known of game preserves and bird sanctuaries and of the behavior of fur animals that have been confined or protected in parks, the most logical step to be taken in attempting to maintain a satisfactory fur supply is to set aside fur-animal preserves and stock them with the best animals that can be found, the animals to be fed, furnished with dens, and allowed full liberty. From such preserves choice breeding stock could be obtained for private use or for stocking other preserves. The territory surrounding such preserves would soon become the choicest trapping regions in the country.

Conclusion

In order to make fur-bearing animals a constant source of profit it is necessary that stringent protective laws for their conservation be adopted and enforced. Such laws should be uniform in States having similar climatic conditions. The open season should be short, and limited within the period when skins are prime. The use of poison, smoke, gas, or fumes in taking fur-bearing animals should be prohibited. Trappers should be licensed at a nominal fee and required to report the number and value of their catch at the end of every trapping season—this information to be published annually for the enlightenment of the public.

It is suggested that State game commissions and State agricultural experiment stations promote the raising of fur bearers, especially foxes, skunks, and muskrats, which are being propagated with success; that they investigate methods of feeding these animals and combating their parasites; that they undertake the production of improved strains by selective breeding; and that they study the relations of fur animals in general to agriculture and their value as an asset to the State.



IN A RATHER EXPECTANT MOOD

THE MUSKRAT AS A FUR BEARER

WITH NOTES ON ITS USE AS FOOD

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IMPORTANCE OF THE MUSKRAT

The fur resources of the United States have diminished steadily during the last half century, and present conditions indicate a still further shrinkage of the supply. The decrease has been in quantity of the better pelts and not in total value of the annual catch. The large increase in value is accounted for by the advancing prices and by the large output of furs that formerly were neglected. The muskrat has been one of the chief factors in maintaining a high total value for our annual fur production and in commercial importance now heads the list of fur bearers of the United States.

Beavers, otters, martens, and fishers have disappeared from much of their former range, and even minks, raccoons, and skunks have become scarce in some localities. Muskrats, on the contrary, have not diminished in numbers, except in places where marshes have been drained. These animals multiply much more rapidly than the other fur bearers named, and because of their aquatic retreats and general habits are better fitted to maintain their numbers under reasonable protection. The present bulletin is designed to show their economic importance and to encourage legislation tending to conserve an important resource. The harmful activities of muskrats are by no means forgotten, and methods for destroying the animals when they become noxious are presented.

Description

The muskrat is a rodent which when full grown is about four times as large as the ordinary brown rat. It has a blunt muzzle, a short and hardly noticeable neck, and a stout body. The tail is characteristic, about two-thirds as long as the head and body, compressed laterally, and tapering to a rather acute point; the thinly scattered hairs on the tail do not conceal the small but distinctly marked scales. The eyes are small, black, and beady. The ears are short, covered with hairs, and in winter almost wholly concealed in the fur. The incisors are large and without grooves. The legs are short, especially the front ones, and the feet are stout and provided with rather long claws. The hind feet are webbed slightly and so formed that they can be turned edgewise when carried forward while the animal is swimming.

Except the beaver no inland fur-bearing mammal of the United States leads a more aquatic life than the muskrat. Its characters especially adapt it to the water. Besides having feet specialized for swimming, it has a tail which serves as an efficient rudder, and fur which is practically waterproof. The long overhairs are close and glossy, and the underfur is exceedingly dense. The more common color of the muskrat is dark umber brown, the exact shade depending upon the season and the locality.

Fur dealers recognize only one variety of the muskrat differing from the common color. This variety consists of the dark, sometimes almost black, skins collected in the Chesapeake and Delaware regions, and in more limited numbers elsewhere. They are sold as "black muskrat," and command a higher price than the ordinary color. The form from which most of the black skins are derived ranges

chiefly in the tidewater region of the Atlantic coast from New Jersey to North Carolina.

The muskrat derives its name from the musky odor given off by certain glands. The odor pervades the entire skin to some extent, particularly in summer. Musquash is the Cree Indian name, and has the authority of long use, especially among fur dealers.

Classification and Distribution

The muskrat is related very closely to the common short-tailed meadow mouse, but is much larger, and has fur, feet, and tail more highly specialized for a life in the water. In addition to size, it differs from the meadow mouse particularly in having a long, narrow, rudderlike tail, which is nearly naked, about as long as the body without the head, and thickest along the middle line.

Muskrats inhabit the greater part of North America from the northern limit of trees south about to the Mexican border. They are absent from the coastal parts of South Carolina, Georgia, Alabama, and Texas, and from Florida and nearly all of California. They do not occur in parts of the interior plateau that have no streams or lakes. Throughout their extensive range, except in Newfoundland and southern Louisiana, they are considered as of one species with about a dozen geographic races.

General Habits

Muskrats are chiefly nocturnal, but they are much more active by day than many persons suppose. Where seldom disturbed they often may be seen at work in bright sunlight, especially at the season when they are building winter houses. These structures, though smaller and less strongly built, are in many ways similar to those of the beaver.

Houses and Burrows

Muskrat houses are composed of rushes, grasses, and roots and stems of other aquatic plants. The structure rests on the bottom of a shallow pond, and is built mainly of the kind of plants on which the animals feed. These are heaped up without orderly arrangement until the domelike top rises two or three feet above the water. The mud on the outside and in the walls of muskrat houses seems to be collected accidentally with the roots. Within the part of the structure above the water a chamber is excavated, from which two or three passages lead downward through the mass into the water, reaching it at points well below the frost line. If the water is shallow, the animals excavate deeper channels leading from the house to various parts of the pond.

The houses are mostly for winter shelter and food and are seldom used as receptacles for the young. Occasionally, when driven from other houses or when excluded from underground burrows by barriers of ice or frozen ground, more than one family may occupy a single house temporarily.

When banks of streams or ponds are high enough for the purpose, muskrats burrow into them. Entrances to the tunnels are almost always under water, and the approach to them is, if possible, by channels of sufficient depth to prevent ice from closing the passage. The tunnels extend

upward into the bank above the level of the water. They often rise to within a few inches of the surface of the ground and are frequently protected above by roots, by trees and shrubs, or by thickly matted turf. These tunnels extend ten to fifty feet into the bank and terminate in a roomy chamber which sometimes contains a bulky nest composed of dried vegetation. Usually two tunnels lead from the nest to the water, and often a tunnel has two branches or outlets.

When burrows can be made, muskrats occupy them in winter and summer; but in shallow ponds and marshes, and especially in northern latitudes, the entrances are often closed by ice in winter. In such situations and when banks are not suitable for burrows, houses become a necessity, but they are seldom seen along the borders of deep ponds and canals, and, except in extensive swamps unbroken by hills, they are not found in the southern parts of the muskrat's range.

As cold weather approaches, the animals become very active, adding to their old winter houses, building new ones, and deepening channels that lead to houses and burrows. They do not hibernate, and, aside from the vegetation of which their houses are made, seem to make little provision for winter. However, some of the surplus food collected may be found in their burrows at almost any time.

Breeding

Early writers about the muskrat gave widely divergent accounts of its breeding habits. It is now well established that the animals breed from three to five times a year and that the litters average from six to eight young. The early spring litters are usually less in number, and those of mid-summer are somewhat above the average. The following are actual records secured by the Biological Survey: In February, three embryos; March 6, three large embryos; April 19, six small embryos; June 8, eight embryos; June 18, thirteen embryos. It is probable that the young of early spring litters breed in the fall of the same year.

A correspondent from Cambridge, Md., has furnished a detailed account of his observations during many years while residing near marshes and trapping them. He makes the interesting statement that most of the young muskrats in Dorchester County marshes are born, not in burrows, for there are few places where burrowing is possible, nor yet in winter houses, although this is occasional, but in new nests which the female builds of grasses and dry plants, but without roots or mud. Such a nest is placed above the reach of tides in a brush pile or a bunch of growing plants. He states that he often has found young muskrats in these nests, which are far less bulky than the winter houses. He is uncertain as to the period of gestation, but thinks it is less than a month.

All recent testimony shows that in their breeding habits muskrats are not unlike field mice. The conclusion is further strengthened by the remarkable way in which the marshes, depleted by vigorous winter trapping, are replenished before the opening of another season. The known facts may be thus summarized: Normally the animals mate in March and the first litter is born in April; a second litter is due in June or early in July; and a third in August or September. In favorable seasons a fourth or even a fifth litter may be produced. The period of gestation is possibly no longer than twenty-one days, as with the common rat and probably the field mouse. The young are blind and naked when born but develop rapidly. Outside of low marshes, muskrats usually are born in the underground burrows.

Migrations

Muskrats often wander over fields and along highways far from water. This occurs late in fall, early in spring, or during severe droughts late in summer. The causes are not

understood, although the spring movement has generally been attributed to the beginning of the mating season. When met away from water, the animals sometimes show considerable ferocity and have been known to attack persons savagely without apparent provocation.

The local movements of muskrats, both overland and along streams, make it difficult to protect canals and artificial ponds from the animals. They promptly find their way to new ponds built several miles from their former known haunts. Irrigation canals and ditches likewise are invaded throughout their entire length so nearly simultaneously that it is hard to believe that all the animals could have reached them through the head gates.

Food

Like nearly all rodents, the muskrat is chiefly herbivorous, but it sometimes indulges in animal food, a habit which it shares with many other gnawing animals.

Its chief food in winter consists of the roots of aquatic plants—pond lilies, arums, sedges, and the like—but in some localities it feeds on mussels and also on carp and other sluggish fish that bury themselves in mud. When ponds are frozen over, muskrats are restricted almost wholly to food accessible under the ice, but in rare cases they leave the water and burrow under the snow in search of the crowns of grasses and sedges.

The summer menu is far more extensive, being made up of many aquatic plants—roots, stems, leaves, and fruit—and in addition, of supplies from near-by fields or woods. Muskrats are fond of nearly all garden vegetables—cabbage, onions, carrots, parsnips, beets, peas, beans, celery, and the like—and they frequently do considerable damage in gardens close to their haunts.

Injury to Crops

Damage to crops by muskrats is confined to limited areas. On low-lying lands bordering streams they sometimes attack corn or other grains, the injury usually being restricted to narrow belts near the water's edge. Sometimes growing corn is eaten to the ground, but the damage is greatest when it is in the roasting-ear stage. The animals then cut down the stalks to reach the ears, which they carry to their burrows. Injury to other crops, except rice, is generally slight.

Losses of garden crops on bottom lands are more serious than the losses of grain. The black alluvial soils of creek bottoms are especially adapted to growing vegetables which here escape the effects of summer drought; and the farmer, especially in some of the Western States, often chooses for the vegetable garden a plat near the water. The muskrat frequently invades such plats and destroys the vegetables.

Reports of losses of turnips, celery, melons, and other crops due to muskrats are heard occasionally, and also losses of fallen apples when the trees are close to the water.

The muskrat is an enemy of the rice planter, but fortunately it is absent from many of the southern districts that produce rice. In Louisiana, however, it is a recognized pest in the plantations. It burrows in the embankments, thus flooding or draining the fields at the wrong time, and often feeds on the growing crop and breaks down the plants.

Where muskrats are abundant they are destructive to waterlilies grown in private grounds and public parks, and often by their depredations make it difficult to establish the lilies in new situations. The common white waterlily is said to be less subject to injury than the odorless species, and the so-called lotus, both native and introduced species, is most frequently injured.

Injury to Tidal Meadows

Along the Atlantic coast are large areas which are over-

flowed by salt water at highest tides, but which produce useful though coarse grasses. Dikes are sometimes built over the low places to exclude the tides, and thus the quality of the hay is improved and cutting by machine made possible. The embankments have gates to permit drainage of surface water and to admit the tides when desired. Muskrats often gnaw holes in the gates or burrow through dikes and flood the land, much to the annoyance of the salt-water farmer. Although this flooding of meadows results in inconvenience, the losses are not great. It is highly probable that if the muskrats were properly protected they would yield better returns to the owners of the land than are now obtained from the hay.

Injury to Dams and Embankments

The most serious damage by muskrats is to dams and embankments. Milldams, canals, irrigation ditches, ice ponds, and river levees are more or less subject to injury from these animals. They delight in the deep water of artificial reservoirs. Whenever a canal is built along a river valley, large numbers of muskrats promptly desert the river for the new waterway and pierce the embankments with their burrows. Where the berm bank of the canal is high, little harm is done on that side; but on the other bank and in places where the berm slopes downward, water often penetrates the burrows and disastrous breaks follow. It must be admitted, however, that sometimes the muskrat is blamed for breaks actually caused by crawfish, pocket gophers, moles, and even the common brown rat.

In irrigated sections of the West, ditches and reservoirs are sometimes injured by muskrats, requiring costly repairs and involving serious delays in the distribution of water to growing crops. Most canal and irrigation companies find it profitable to employ watchmen to patrol the embankments and look for burrows of muskrats, gophers and other animals.

The breaking of milldams in districts where manufacturers depend on water power is often due to muskrat burrows. In the spring of 1904, near Thomaston, Conn., muskrats burrowed through a dam, wrecking it and releasing the water, which injured property in the town to the extent of several thousand dollars.

In April, 1904, the waters of Saline River in southern Illinois invaded the Equality mine and threatened the lives of about a hundred miners. Investigations showed that the waters of the swollen river had reached the mine by way of muskrat burrows.

Instances of the destruction of railway embankments due to muskrats and water are not rare. Injury to live stock through stepping into burrows of muskrats is not infrequent, and in one instance a costly driving track which had been constructed near a marsh was abandoned because of continued burrowing beneath it by these animals. A shell road in Dorchester County, Md., built across an extensive marsh, the superstructure resting on timbers lying on the ground, was so undermined by muskrats that it often became unsafe and was a constant source of expense to the county.

Injury to Fish

Muskrats sometimes eat fish, but they capture sluggish kinds mainly and seldom harm game fish. A few years ago, when carp were introduced into many parts of this country, it was found that muskrats sometimes invaded ponds and destroyed the carp. This would not now be regarded as a serious loss.

Muskrats cause some loss to the fish culturist by injuring his ponds and possibly by destroying the food of fishes.

The Muskrat as Food

The flesh of the muskrat for human food is variously esteemed, considerable diversity of opinion being expressed as to its palatability. One writer declares emphatically that its musky flavor would keep any but the starving from eating it. Another declares that the muskrat is game worthy of an epicure, with a flavor somewhat like the wild duck that has been shot in the same marshes where it has fed.

The fact remains that muskrats are sold extensively in some of the markets of the East and Middle West. In the retail markets of Philadelphia, Baltimore, Wilmington, and other cities they are sold as "marsh-rabbits," but no attempt is made to conceal the fact that they are muskrats. They are bought and eaten both by well-to-do citizens and by the poorer people who seldom indulge in high-priced game. The animals are trapped primarily for their pelts, but after they are skinned, the additional labor of preparing the meat for market is so slight that they can be sold very cheaply.

In the Baltimore markets muskrats are on sale from the middle of December to the middle of March. They are received by commission houses mostly from the lower Chesapeake, but supplies have come also from Louisiana and have arrived in excellent condition. The wholesale price usually is about seven cents each and the retail price ten to twenty cents.

Preparing and Cooking

The flesh of the muskrat is dark red in color but fine grained and tender. Unfavorable opinions as to its flavor arise, probably, from lack of skill in cooking or from carelessness in skinning the animal. In the usual method of skinning, the hair side of the pelts does not come in contact with the flesh, the musk glands often come off with the skin, and only in summer does the musky odor pervade the flesh. An unskilled person is more likely to leave some of the odor, but in winter it may all be removed by washing. The novice should be careful to keep the fur from touching the flesh, to avoid cutting into the musk glands, and to trim off any glands that may adhere to the meat.

Recipes for Cooking

Fried muskrat.—Wash the muskrat thoroughly and cut in quarters. Let it lie in salt water for an hour or more, then wash, dry with a cloth, and season. Dip the pieces in a prepared egg batter and dust them with flour or meal. Place the lard in a frying pan and let it get hot. Then put in the muskrat and fry very slowly for an hour. Prepare a gravy of milk, butter, flour, and parsley and season to taste. After it thickens pour it over the cooked muskrat.

Roast muskrat.—Wash the meat thoroughly, let it lie for an hour or more in salt water, and then wash again. Put it in a pan with water, salt, pepper, butter, and a little onion; sprinkle flour over it and baste it until it is thoroughly done.

Stewed muskrat.—Wash the meat thoroughly, cut it in pieces, and let it lie in salt water for an hour. Then wash again, put it in a saucepan, and season with butter, salt, and pepper to taste. Let it simmer slowly, and when nearly done put parsley and a little chopped onion into it. When entirely done thicken with a gravy of flour and water as for stewed chicken.

The slightly gamey flavor of muskrats prepared by the above recipes is liked by most persons. Should it be objectionable it may be overcome by soaking the meat overnight in salt water.

Muskrat Furs

In the raw state the fur of the muskrat is dense and soft and in general appearance much like that of the beaver.

However, the pelage is shorter and less close and the pelt somewhat inferior in durability. The color varies with season and locality. Northern skins averaged lightest in color, being often a light silver gray, sometimes nearly white on the underparts. This is probably because many are taken in summer pelage. Very dark skins, classed as black, come mainly from New Jersey, Delaware, and Maryland, but are produced in limited numbers in other parts of the United States and in Canada.

Compared with most other furs of such small size, muskrat furs are of excellent quality and durability; their cheapness is chiefly the result of their abundance. The earliest demand for the fur was for the manufacture of so-called beaver hats, it making an excellent imitation. When silk replaced fur in hat manufacture the demand for muskrat skins fell off greatly. They next became popular as imitations of sealskin. Properly dyed and made up they are difficult to distinguish from the genuine, but their wearing qualities are inferior. Modern fur dressers and dyers have found means of imitating many of the more costly furs with that of this animal, and have thus created a continuous demand for the pelts.

Trade in Muskrat Furs

The growth of the demand for muskrat furs is shown by the records of London importations and sales. From 1763 to 1800 (38 years) the average number of skins imported and sold annually in the market was less than 75,000. During the 50 years from 1801 to 1850 the average was about 411,000. From 1851 to 1900, inclusive, the importations averaged over 2,534,000 yearly; and during the 10 years, 1901 to 1910, the average rose to \$4,223,000. In recent years the London sales were as follows: 1911, 5,197,530; 1912, 5,014,921; 1913, 6,876,417; 1914, 10,448,647; 1915, 3,500,000 (approximately). The decreased importations for 1915 are explained by the European war. When it is remembered that a constantly increasing number of muskrat furs are dressed and manufactured in America instead of going through the London market, the foregoing statistics show a remarkable increase in the utilization of this fur. Notwithstanding the fact that during the past century and a half over a quarter of a billion muskrats have been taken for their pelts, the supply has not diminished greatly. It is probable that with adequate protection in the breeding season, from ten to twelve million pelts can be taken annually in North America without depleting the supply.

The prices paid for muskrat pelts vary considerably from year to year. In 1909 the skins brought from 35 to 50 cents each; in 1910 they reached the extremely high quotation of 90 cents and \$1. Since that date they have been cheaper, but the general tendency is upward, and probably they never again will be as cheap as they were thirty or forty years ago. During the season of 1917 they sold at from 35 to 75 cents each.

Trapping the Muskrat

Muskrats are not suspicious and are trapped easily. They take any suitable bait readily, especially in winter and early in spring, when green food is scarce. The majority of those captured in the ordinary steel trap are caught by the front leg. A strong trap breaks the leg bone and in struggling the animal may tear loose, leaving a foot, or part of it, in the trap. For this reason traps should be set so that the captives will drown quickly.

The best baits for muskrats are carrots, sweet apples, parsnips, turnips, or pieces of squash. Many trappers use scent to attract the animals, but it is doubtful whether the smell of musk or of any of the oils, as anise or rhodium, has advantages over the natural odor of the baits named.

Most muskrat trappers use the ordinary steel trap (No. 1). The manner of setting it depends upon the situation, and the skill of the trapper is best displayed in selecting this. Muskrat trails may be found along the banks of all streams and ponds which they inhabit, and the practiced eye often can trace them into shallow water. Sink the trap in the trail, partly in the mud or sand where the water is two or three inches deep, and fasten the chain to a stake, or, better still, to a slender pole reaching into deep water. The pole, upon which the ring of the chain is to slide, should have a fork at the outer end to prevent the ring from slipping farther, and the other end should be stuck firmly into the bank. Fasten the bait to a stick set in the mud, so that the bait is about a foot above the pan of the trap. The animal in reaching for the bait sets the hind foot upon the pan and is caught more securely than if taken by the fore foot. It immediately plunges into deep water, sliding the chain along the pole as far as it will go, and soon drowns. If the chain is fastened to a stake, it should be planted in water a foot or more in depth, so that the animal will drown.

Setting traps inside or near muskrat houses is to be condemned; many States have laws forbidding the practice and some of them specify the minimum distance from the house at which a trap may be placed. A long plank five or six inches wide or a floating log or one extending out into the water may be used advantageously as a support for traps. The plank is moored to the shore by a wire passed through a staple driven into one end and the other end is anchored in the stream or pond. Light cleats are nailed to the upper side at intervals, with space enough between them to hold a trap when set. Shallow notches wide enough to hold the traps may be cut into the log, and the traps covered lightly with fine leaves or grass. The ring at the end of each trap is fastened to the plank by a staple. Baits of carrot or apple may be scattered; but they are not necessary, since the animals use such a device as a highway to reach the shore. An animal venturing upon it is almost sure to be caught. In this way many occupants of a pond may be taken in a single night.

The box trap is a favorite with some trappers. This consists of a wooden box with a gate at each end, the cross section inside measuring about 6 by 6 inches. The gate is of wire and is arranged to swing inward but not outward. The box is set just under water with one end at the entrance to a muskrat burrow. The animal lifts the gate on leaving the burrow and is imprisoned and drowned. Others follow until perhaps all the occupants of the burrow are caught. A similar trap may be made entirely of heavy wire netting of half-inch mesh, bent to shape. These traps are well adapted to very narrow streams or ditches.

An open barrel sunk in the soil close to the bank of the stream or pond frequented by muskrats is considered an effective trap. The top of the barrel should be level with the surface of the ground. The barrel is half full of water, upon which pieces of carrot or apple are floating. A piece of board about 8 inches square or a few floating chips will delude the animals into jumping into the barrel to secure the food.

A floating barrel is a good substitute for a sunken barrel. A hole 8 to 12 inches square is sawed in the side of a barrel having both ends intact. A strong cleat is nailed across each end, projecting 6 or 8 inches on the sides. Upon the cleats boards as long as the barrel or somewhat longer are nailed. Enough water is placed inside to make the barrel float with the outer platform level with the surface of the pond—say, with about one-third of the barrel exposed. Apples or carrots are placed inside for bait.

Caring for the Skins

Muskrats taken for the fur should be trapped—not shot or speared. If taken alive in a trap they should be killed by a sharp blow on the back of the head. Trappers usually carry a short club for this purpose.

Muskrat skins intended for the market should be "cased," not opened along the belly. In skinning, begin at the heel and slit up the middle of the hind leg to the tail, around it, and then down the other leg to the heel in the same way. No other cuts are needed, though many trappers pass the knife around the feet, where the long fur ends. Then turn the skin back over the body, leaving the fur side inward. The skin peels off easily to the front feet. Cut closely around nose, ears, and lips, so as not to tear the pelt. If bits of flesh adhere to the skin about the head, they may be scraped off, but this is usually left to the fur dresser. The skin, inside out, is stretched over a thin board or a shingle of the proper shape and a tack or two is inserted to keep it in position to dry. Stretchers made of heavy galvanized wire are now extensively used by trappers and have advantages over the wooden kind. Skins should be dried in the open air—not before a fire or in the sun. They should not be exposed to rain. Books on trapping usually give full directions for caring for fur furs.

Home Dressing of Furs

Formerly many muskrat skins were home-tanned and made into caps, collars, and other articles. At present the home utilization of skins is much less extensive, but knowledge of a good method of dressing of fur is still desirable. Most of the methods employed by amateurs involve the use of alum to fix the hair; but satisfactory results, so far as pliability of the pelts goes, depend largely upon the labor bestowed on them.

The directions here given, if followed, will give better results than the use of alum. Prepare a tanning liquid composed of a quart of salt and one-half ounce of sulphuric acid to each gallon of water. This mixture should not be kept in a metal container. Muskrat skins (not cased) are tanned in this mixture in a day, but they may remain in it longer without injury. When removed from the liquor, wash several times in soapy water, wring as dry as possible, and rub the flesh side with a cake of hard soap. Then fold them in the middle, lengthwise, over a line, hair side out, and leave to dry. When both surfaces are barely dry, and the interior is still moist, lay them over a smooth, rounded board and scrape on the flesh side with the edge of a worn flat file or a similar blunt-edged tool. In this way an inner layer is removed and the skins become nearly white in color. They are then stretched, rubbed, and twisted until quite dry. If parts of a skin are still hard or stiff, the soaping, drying, and stretching process should be repeated until the entire skin is soft. Fresh butter, or other animal fat, worked into skins while they are warm and then worked out again in dry hardwood sawdust, or extracted by a hasty bath in gasoline, increases their softness.

Use of Muskrat Fur

Many of the muskrat skins now used in America are dressed in the United States. Formerly they were dressed in Leipzig and other European fur centers. The cased skins are often split laterally into back and belly parts, the former often being sheared and dyed a rich brown in imitation of fur seal. The handsome garments made of these are called "Hudson seal" in the fur trade. The belly strips usually are dressed in the natural color and are used for lining overcoats and other outer garments.

Muskrat skins also are used extensively to imitate mink and sold under such trade names as "river mink" or "ondatra mink." However, the better grades of muskrat, dressed

in the natural color and unplucked, have a very beautiful luster and make very handsome coats, boas, and muffs. Muskrat fur also is used to make small articles of apparel, as gloves, caps, and collars; and waste pieces from the furriers' cutting rooms are utilized for hatters' fur.

Muskrat Farming

Muskrat farming is already a prosperous business. On 5,000 acres of marsh at the mouth of the Maumee River, near Lake Erie, controlled by a hunting club of Toledo, Ohio, the muskrats had been undisturbed for two years prior to the winter of 1903-4, when they were trapped for the benefit of the club. Five thousand were taken in a single month (January, 1904), and the skins were sold for 25 cents each. The carcasses also were sold at \$1 a dozen.

The muskrat industry probably has reached its highest present development on the eastern shore of Maryland. The extensive marshes of Dorchester County are a center of muskrat fur production. Formerly the land was considered almost useless, as it is subject to tidal overflow. Now, owing to the increased value of fur, many of the marshes, measured by actual income, are worth more than cultivated lands in the same vicinity. Trapping privileges are leased, usually on the half-and-half plan, and trappers and owners unite to protect the marshes from poaching.

A few specific examples will give a better idea of the value of these marsh lands. The owner of one tract informed the writer that he bought it several years ago for \$2,700. It is leased for half the fur and in 1909 yielded him \$890, or about 33 per cent on the investment. A small piece of marsh—about 40 acres—was bought in 1905 for \$150. Leased for half the fur, it yielded the owner \$40, \$60, \$70, and \$100, respectively, for each of the four years, 1906 to 1909. Taxes on this land are very light, and on the basis of a 6 per cent income the returns for 1909 would represent an approximate value of nearly \$40 an acre. The owner of a 1,300-acre tract of marsh, who traps with the aid of his sons, in two seasons, 1909 and 1910, secured over 12,000 muskrats, which sold for more than \$9,000.

The muskrat skins sold in this region are seldom assorted before sale. They are separated into black and brown lots and then counted, a deduction of from 3 to 5 per cent being made for the young, known as "kits." The skins sold throughout the season of 1917 brought 35 to 45 cents for brown and 60 to 75 cents for black. The proportion of black skins varies on different parts of the marshes from 10 to 60 per cent, the average being about 40 per cent.

Muskrat meat is an additional source of income to the trapper. It is bought by local buyers and sold for local consumption or shipped to outside markets, all being utilized. The Baltimore market absorbs the bulk of the shipments. In 1909 the wholesale price was about 4 cents a carcass; in 1917 it ranged from 10 to 13 cents.

The editor of the Cambridge (Md.) Record stated that the muskrat industry of Dorchester County brings into the community about \$100,000 annually. This would indicate that the average catch is about a quarter million animals. Owing to continued cold weather in 1917, the catch probably did not exceed 150,000, but the high prices prevailing brought the income nearly up to normal. The danger of exhausting the supply by continued close trapping has been discussed in Dorchester County, but trappers maintain that with the long closed season, March 16 to December 31, little ground for anxiety on this score exists.

Possibilities of the Business

Muskrats require no feeding, since the plant life of ponds and marshes furnishes abundance of food. In many States the areas adapted to the muskrat are extensive, and doubtless suitable areas could be found in sections from

which muskrats are now absent. As trapping is done in winter, the business of muskrat farming is especially adapted to farmers and farmers' boys.

The improvement of the muskrat's pelage by selective breeding has never been attempted. Probably the black muskrat could be bred true to color and greatly improved in the localities it now inhabits, and could be introduced successfully into other sections of the country. Indeed to make the most of the muskrat industry requires that the possibilities of selective breeding be tested.

Destroying Muskrats

Its destructive habits make the muskrat a pest in comparatively few places. On the whole, and especially in large marshes and uninhabited sections, its economic value far outweighs the harm it does. On many of the streams it inhabits, no attempts have been made to impound water for use, and hence the animal does not interfere with engineering operations. In all such situations and in swamps the muskrat should have ample protection to insure a present and future fur supply. The present value of the pelt is an incentive to excessive trapping.

Mill owners and superintendents of canals, irrigation works, and levees sometimes are confronted with the necessity for active operations against muskrats, and should know the more effective methods of combating them. It must be confessed that the usual means have not been very successful. Bounties have never effected more than a temporary reduction of their numbers. Shooting ordinarily makes the survivors exceedingly wary. Trapping is more successful, but it can seldom be carried to the limit of practical extermination.

Methods of trapping are effective in both summer and winter, but when green food is abundant greater care is needed in the selection of baits. With enough steel traps placed in favorable locations the danger to embankments may be diminished greatly. The barrel trap will sometimes bring quicker relief, since it often captures an entire family at one setting. Whenever possible, trapping these animals should be deferred until their skins are prime.

Muskrats can be destroyed much more rapidly by poisoning than by trapping. Powdered strychnine sweetened with powdered sugar or commercial saccharin and sprinkled over freshly cut pieces of apple, carrot, or ripe squash has proved effective in many cases. Crystals of the same poison inserted in the baits with a knife also have given good results. Care must be taken to keep poisoned baits where they will not endanger other valuable wild or domestic animals.

Protecting Property From Muskrats

The use of concrete foundations of proper depth for dams reduces to a minimum the danger of injury from muskrats. The modern dam or weir is always safe from their attacks.

Probably the most successful means of protecting earthen embankments is to employ a skillful trapper to patrol them regularly, using traps, poisons, and a small caliber rifle. The patrol is usually charged with the additional duty of watching for and promptly repairing slight breaks in the embankments.

Several methods of keeping muskrats from injuring small ponds have been recommended. One is the liberal use of gravel or coarse sand for the surface of embankments, since the animals will not burrow in soil that fills the hole as fast as they open it.

The best means of protecting the vegetable garden from muskrats is to erect a fence of netting, either surrounding the garden or skirting the bank of the adjacent stream or pond. The netting should be of galvanized wire three

feet or more in width and of one and one-half inch mesh. The lower edge should be sunk six inches into the soil to prevent the animals from digging under.

Enemies of the Muskrat

Man is by no means the only destroyer of the muskrat. Among its natural enemies are the coyote, fox, mink, the larger hawks and owls, and the pickerel. But all of these enemies together do not greatly affect its numbers.

The proposed reclamation of swamps and marsh lands throughout the country, if carried out, will greatly reduce the number of muskrats by restricting their habitat, and if the supply of this fur is to be maintained it must be through protection and eventually through private ownership.

Protective Laws

The earliest act for the protection of fur animals in America was the Massachusetts law of 1791, which prohibited trapping fur animals, including the muskrat, during the months of June, July, August, and September. An act passed by New Hampshire in 1821 protected beavers, minks, otters, and muskrats from May 1 to November 1 of each year. The New Jersey law protecting muskrats, passed January 21, 1829, continued in force until 1913. The first Ohio law providing a close season for muskrats was passed June 18, 1830. At present this animal has partial protection in a large part of its range, but most of the laws are of comparatively recent enactment. Changes in laws affecting the muskrat may be found in Farmers' Bulletins, issued annually, on laws relating to fur-bearing animals. Laws at present in force (December 31, 1916) are here summarized by States and Provinces.

Delaware.—Close season, *Newcastle County*, March 10 to December 1; *Kent and Sussex Counties*, March 15 to November 20. Unlawful to shoot muskrats at night; to hunt them with a dog; to take them in time of flood or freshet when driven from their usual places of shelter; or to destroy their nests, dens, or lairs.

Illinois.—Close season April 1 to October 31.

Indiana.—Close season April 1 to October 31.

Iowa.—Close season April 1 to November 30.

Kansas.—Close season March 15 to November 15.

Louisiana.—Close season for trapping, February 16 to October 31. May be taken at any time within 6 miles of any levee.

Maine.—Close season, May 1 to October 31. Traps may not be set within 25 feet of a muskrat house. A special law protects these animals on Lower Kezar Pond and certain adjacent territory, until July 3, 1919.

Michigan.—Close season, April 15 to October 31. Unlawful to destroy muskrat house, to set a trap within 6 feet of such house, or to use firearms or explosives in taking muskrats.

Minnesota.—Close season, April 15 to November 30. Houses and dens partly protected; may not be hunted with dog.

Missouri.—Close season, February 1 to October 31.

Nebraska.—Close season, April 15 to February 14.

New Hampshire.—Close season, March 1 to October 31. Unlawful to set trap in, on, or at entrance of a muskrat house.

New Jersey.—Close season, April 2 to November 14. May be taken by trap only, except in Salem County above Mill Creek, where they may be taken in open season by firearms and light. Unlawful to disturb house or den.

New York.—Close season, April 21 to November 9. Muskrat houses may not be molested, injured, or disturbed, nor the animals shot at any time.

North Carolina.—Muskrats may not be trapped by anyone who has not resided in the State at least two years. Local laws protect muskrats, as follows:

Ashe County.—Close season, February 1 to October 31.
Columbus County.—Close season, April 1 to December 31 (in two townships, March 1 to November 30).

Craven County.—Close season, April 1 to November 30.
Currituck County.—Close season, April 1 to October 31. Unlawful to shoot in open season after sunset or before sunrise on east side of Currituck Sound.

Gates County.—Close season, April 1 to November 14.
Haywood County.—Close season, January 15 to November 14.

Henderson County.—Close season, March 15 to November 14.

Isaquah County.—Close season, April 1 to October 31.

Robeson County.—Close season, March 1 to October 14.

Swain County.—Close season, February 15 to November 14.

North Dakota.—Close season, April 15 to November 15. Muskrat house protected at all times.

Ohio.—Close season, April 2 to December 31.

Oregon.—Close season, March 1 to October 31.

Rhode Island.—Close season, April 15 to October 31 (1916, ch. 1399).

South Dakota.—Close season, April 1 to November 14.

Tennessee.—Close season, noon January 15 to noon October 15 (except on one's own land).

Vermont.—Close season, May 1 to October 31 (except in Addison County, where the open season is March and April only). Unlawful to open or destroy muskrat house or to set trap at entrance.

Virginia.—*Nansemond County:* Close season, April 1 to December 31. *Princess Anne County:* Close season, March 15 to October 31. Chapter 375, Laws of 1916, provides that the open season for trapping all fur animals, except on one's own lands, shall be noon of October 15 to noon of January 15; this law applies to any county after its adoption by the board of supervisors.

Wisconsin.—Close season, March 16 to November 14. Unlawful to take with aid of spear, gun, or dog; muskrat houses protected at all times.

The muskrat pelt taken in October or November is worth hardly half as much as if trapped in February. Trappers are often careless of their own interests, and in their eagerness to forstall competitors take the field far too early. Fur dealers, on the other hand, have generally deprecated this policy, and have endeavored to secure reform. Muskrats within the United States should not be trapped before December 16; and while the fur is still prime in the latter part of March, the breeding season is then on, and continued trapping would greatly limit the number of animals for the next season. The open season for the muskrat should be limited to about three months, from December 15 to March 15, or in the more northern States from December 1 to March 15.

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Eighteen of these breeders are pups of last year — only one year old.

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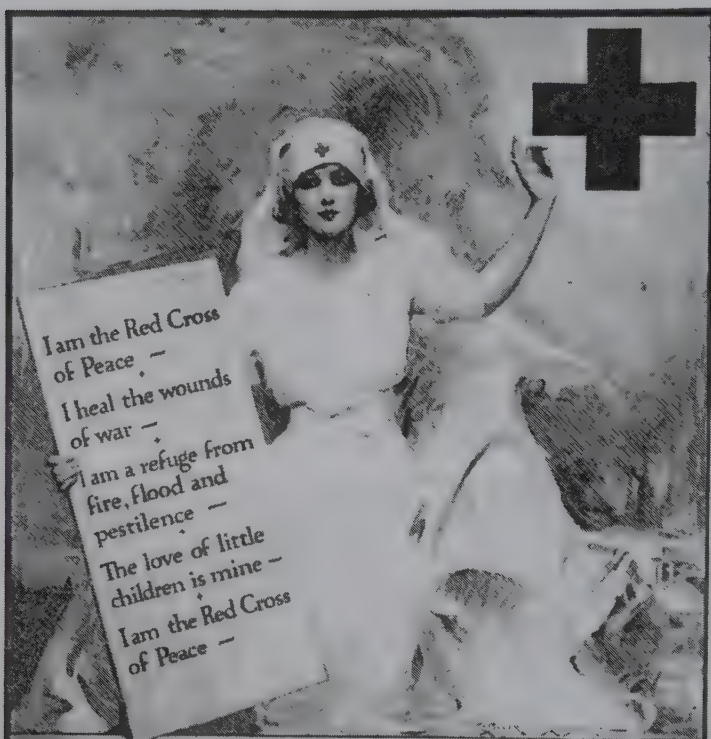
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15 First Prizes, 14 Second Prizes and 10 Third Prizes were awarded to foxes that scored less points than our lowest scoring **THIRD PRIZE** Winner at the Boston Show?

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3 First Prizes, 5 Second Prizes and 5 Third Prizes were awarded to foxes that scored lower than our lowest scoring **Third Prize** Winner at the Boston Show?

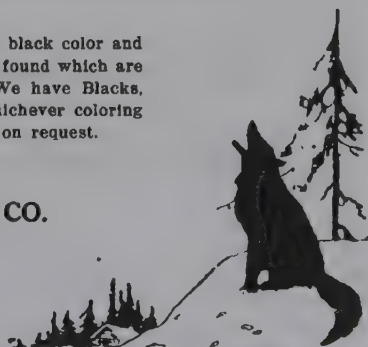
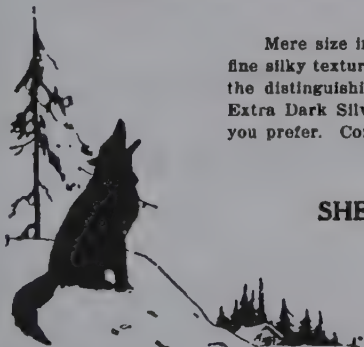
We entered 10 foxes at the last Boston Show and won 7 ribbons, including 1 sweepstake prize, with an average score of 93-1/6. Some record, considering the fact that we won these prizes in the classes where the greatest competition took place. Our 10 Foxes scored as follows: 94%, 93%, 93½, 92%, 92%, 92%, 92%, 91%, 91%, 90%. These figures illustrate the uniform excellence of the "SHEFFIELD" foxes.

Mere size in foxes must be secondary to that rich blue black color and fine silky texture of fur so much sought after but so seldom found which are the distinguishing features of all "SHEFFIELD" foxes. We have Blacks, Extra Dark Silvers, and Dark Silvers and can give you whichever coloring you prefer. Complete plans for ranch, pens and dens sent on request.

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American Fox and Fur Farmer

Vol. I

SEPTEMBER, 1921

No. 3

PUBLISHED MONTHLY, 406 ARCADE BUILDING, UTICA, N. Y.—PHONE 1778-W
 An American Publication Devoted Exclusively to the Silver Black Fox Industry and Fur Farming

WARD B. EDWARDS, *Editor*

PUBLISHED BY "AMERICAN FOX AND FUR FARMER"

BREEDERS TO THE FRONT

The fox breeders of the United States are making some splendid sales these days. These sales are being made direct and not through brokers. The breeders have come to the conclusion that sales can be made direct from their ranches to much better advantage to the purchaser than if they were made through a broker, and as a result the purchaser is able in many instances to save the broker's commission. We are of the opinion that this plan will work out to the entire satisfaction of both rancher and purchaser. Another advantage may be gained also because the rancher is able to give the purchaser first hand information relative to the building of his ranch, the construction of his pens, and the feeding and care of the animals. While in many instances the broker would be unable to furnish this information if the sale was made through him. The financial saving to the purchaser should not be ignored, for in many instances it is a large one. Ranchers will do well to ponder over this matter, for it is well worth considering.

THE INDUSTRY IS BOOMING

Reports from all over the country to our office indicate that the ranching of silver black foxes in captivity is on the boom. Many new ranches have been started in several States of the Union and many purchases of additional foxes for established ranches have also been made.

Ranchers report that farmers in their vicinity are becoming interested in the raising of silver black foxes as an agricultural pursuit. Authorities of the United States Department of Agriculture, who have made a study of this matter, have laid great stress upon the domestication of fur-bearing animals as a side issue to ordinary farming. Literature is being sent out by many of the ranchers which explains fully to the farmer the manner in which he may establish a small ranch in connection with his ordinary live stock pursuits. This publication is now reaching many of the farmers, and we shall be very glad at any time to give any who are interested further information relative to the domestication of any fur-bearing animals.

CO-OPERATION IS ASSURED

We take this opportunity of extending to the fur farmers of the United States our sincere appreciation of the splendid co-operation which is being extended to this publication in every possible way by them. We are in receipt daily of letters from ranchers all over the country commending the attitude

we have taken relative to many matters of importance dealing with fur farming in general. The subscriptions have come in from every State in the Union, and we are more than pleased with the way that the fur farmer has taken hold of an American publication for the American breeder. We pledge to those who have already co-operated with us and to those who will co-operate in the future our unstinted labors in behalf of the industry in which they are engaged, and we promise them that a square deal will be given them in every way.

SEND IN YOUR ITEMS

This is an appeal to the fox ranchers of the United States to send into this office news items relative to the industry. We shall be very grateful for and will gladly publish any legitimate news item that bears in any way upon the industry. We would also be glad to receive photographs of the various ranches and will use them just as fast as we can; also photographs of particularly fine foxes or pups. This publication is dedicated as an American publication for the American fox and fur farmer and it is our desire to assist every breeder in every possible way. We cannot do this unless we have the hearty co-operation of every breeder.

COUNTRY'S FUR INDUSTRY

The United States leads the world in the production and use of furs. Great industries, which involve large amounts of capital and employ thousands of persons, have been built up and established in this country. In 1920 the sale of furs amounted to practically \$100,000,000, and, according to specialists of the Biological Survey, the gross business in connection with the import, export, and handling of domestic furs in New York City alone during 1919 amounted to \$375,000,000.

During the time that these great industries were developing, the heavy market demand for furs and the high prices prevailing, stimulated activity on the part of trappers to such an extent that especially in the past decade there has been a marked decrease in the supply of wild fur-bearing animals. The recent depression in the fur market is thought to be a transient feature of readjustment attending a return of markets to normal conditions.

Several kinds of wild fur bearers have been successfully reared in captivity on fur farms. The largest investments at present are being made in connection with the rearing of silver-black foxes, and it is here that the greatest profits have been realized during recent years.

DO YOU REALIZE—

That around a million dollars' worth of silver fox skins were sold from ranches last year?

That this is one of the most valuable furs, and that single skins frequently sell for one thousand dollars, wholesale price?

That silver fox ranching is the safest of live stock businesses, as during the greatest part of the year you have an insurance in the pelt of the animal which costs nothing to keep up and is always present?

That one pair of these animals have been known to produce ten pups in a single year, while the average is about four?

No matter where you live, we will ranch your foxes for you with perfect safety, if you prefer to buy them yourself and sell the increase yearly for you, or you can add the increase until you have a definite number of pairs to produce the income you desire.

BOOK REVIEWS

The Fur Trade of America

By AGNES C. LAUT

Published by The MacMillan Company

This book is divided into two parts, the first dealing with fur farming, the dressing and dyeing of furs and a discussion of the different furs and their imitations. The second part deals with the Trapper Afield and an Appendix gives the fur laws of the States and the Canadian Provinces. In the Foreword the author explains convincingly why the fur trade is not cruel and the necessity for killing off some of the animals. She traces the transfer of the traffic from Europe to America, and the development of fur farming in Canada and America. One very valuable chapter entitled "What Women Fur Buyers Should Know" explains the difference between real and dyed furs and compares the durability of the various kinds. The author states that fur farming has come to stay and gives as an example the increase in silver fox breeding. The requirements for a good fox farm are given and the reasons for the early failures discussed. The highly technical process of dyeing and dressing furs is explained in a brief and concise manner. The appearance and habits of the weasel family, the otters, beavers, seals and other staple furs are described in an interesting manner. The author takes up the fur trade from a less technical point of view in the second part of her book. She tells of the methods of the trappers with the different animals and with the rare kinds in particular. The author closes by saying that the trapper destroys animal life that human life may be preserved and so prepares a highway for the civilization that follows his trail through the wilds. This is a book for the lover of outdoors as well as for those interested in the fur trade from a technical point of view, and is an interesting and valuable piece of work.

AN AMERICAN PUBLICATION

From "American Poultry Advocate," Syracuse, N. Y.

"American Fox and Fur Farmer" is the title of a new publication which made its appearance at Utica, N. Y., on July 1st. This publication has the backing of the American breeders of silver black foxes, and has the endorsement of some of the biggest men in the industry. The publication starts out with every assurance of success. The subscription price is \$3.00

per year. It will contain original articles by authorities on fox farming and fur farming in general.

HINTS ON THE CARE OF PELTRIES

Skinning

The care of hides includes skinning, curing, and tanning. As a rule, the first step in skinning an animal is to make a cut along the under side from chin to tip of tail, and from each foot along the inner side of the leg to intersect the main cut nearly at right angles. Fur bearers, however, excepting beavers, the pelts of which are sent to market flat, are slit across beneath the tail from heel to heel, the skin being reversed as the body is withdrawn. The tail and the base of the ears should be skinned out.

Curing

Fresh skins should be divested of loose fat and muscle, and then either tanned at once or cured so as to be kept without deterioration until a convenient time for tanning arrives. They are cured by being stretched free of wrinkles, flesh side exposed, and left in a cool, shady, airy place. In a moist atmosphere or where haste is imperative, the flesh side may be covered with a layer of salt and the skin folded hair side out into a compact bundle, which should be opened and refolded two or three times during the first two days to insure salt action in every part. Flat skins may be stretched by pinning them out on a floor or frame, but in any case there should always be a circulation of air on both sides. Pelts of fur animals are dried, flesh side out, after being drawn over pieces of board shaped so as to stretch them uniformly. Wolf, fox, lynx, and wild cat pelts are taken from the boards and turned fur side out before they are fully dried. Other kinds of pelts go to the market flesh side out.

Tanning

Skins may be tanned either with the hair on or off, as desired. Hair can be removed from hides by soaking them in tepid water made alkaline by lye or lime. The following recipe for a tanning liquor is in common use: To each gallon of water add one quart of salt and one-half ounce of sulphuric acid. This mixture should not be kept in a metal container. Thin skins are tanned by this liquor in one day; heavy skins must remain in it longer. They may remain in it indefinitely without harm. When removed from this liquor, they are washed several times in soapy water, wrung as dry as possible, and rubbed on the flesh side with a cake of hard soap. They are then folded in the middle, hung lengthwise over a line, hair side out, and left to dry. When both surfaces are barely dry, and the interior is still moist, they are laid over a smooth, rounded board and scraped on the flesh side with the edge of a worn flat file, or a similar blunt-edged tool. In this way an inner layer is removed and the skins become nearly white in color. They are then stretched, rubbed, and twisted until quite dry. If parts of a skin are still hard and stiff, the soaping, drying, and stretching process is repeated until the entire skin is soft. Fresh butter, or other animal fat, worked into skins while they are warm, and then worked out again in dry hardwood sawdust, or extracted by a hasty bath in gasoline, increases their softness.

A GOVERNMENT REPORT

Government report: There is no industry of the present age which offers anything like the remuneration, with as little risk, as the silver black fox industry. U. S. Consul Wesley Frost, in his official trade report, says: It is pointed out that the acceptance of this fur as the choicest and most valuable is time honored and not a vogue; that it is standardized like the diamond among precious stones. As in the case of the diamond, the supply seems to have slight connection with the price.



GEORGE S. TUTTLE
South Ryegate, Vt.

One of the very first men in the United States to undertake raising foxes in captivity was George S. Tuttle of South Ryegate, Vermont.

He began experimenting with foxes in 1896 when he secured a litter of wild red fox pups and for several years he caught the pups every spring when young and grew them up and sold their furs when prime.

Being a farmer boy with no money whatever his fondest dreams were to secure a Silver fox for a breeder.

During these years he became an expert fox trapper and in the past twenty years has trapped over six hundred red foxes. He has always been an enthusiastic hunter and fisherman and became a crack shot with a rifle.

Being a trapper and fur buyer he has had a wide experience with furs and has a very intimate knowledge of foxes.

Being interested in preserving some of his hunting trophies he learned the taxidermy trade and for several years carried it along as a side line.

Raising foxes in captivity was purely original with Mr. Tuttle as it was not until after he had successfully raised three litters of pups from three pairs of wild caught reds that he learned that Silver foxes were being ranches in Prince Edward Island, in Maine and in western Ontario.

In 1910 he attempted to interest sufficient capital to buy a good pair of Silvers but the price was then altogether too high and he was obliged to be content with a few cross foxes. Getting a little ahead, breeding crosses, trapping and buying furs; when the war started in 1914 and exploded the high prices, he was able with a few friends to form the Green Mountain Silver-Black Fox Co. Enough capital was raised to go to Prince Edward Island and get foxes at somewhere near pelt

prices. Knowing foxes and fur Mr. Tuttle was able to select a few foundation breeders that have since become famous.

He has always been obliged to practice the strictest economy but by hard work and perseverance has now become one of the best known fox men in the United States and has built up a modest sized ranch filled with foxes that are hard to equal.

Mr. Tuttle is one of the directors of the National Association and was one of the judges at the First Annual Live Silver Fox Show at Muskegon last December. He was recently appointed a delegate from the Association to go to Montreal to help draft a universal standard for judging and scoring foxes.

FOX RANCHING

Black Silver Fox Ranching, while a comparatively new industry, has become too well known during the past few years to require any elaborate description. Silver Foxes were first successfully and profitably raised in captivity in Prince Edward Islands, Canada, and until the outbreak of the war this island practically controlled the Silver Fox industry, the pioneer fox ranchers, almost without exception, making large fortunes. During the past five years the industry has spread out and grown with truly wonderful rapidity, until there is to-day hardly a locality in the United States or Canada where Silver Foxes can be raised that has not its Fox Ranches, or at least some one that is interested in a Silver Fox industry.

To the man or woman that has the money and time to devote to it, the thing to do is to build a ranch of their own and stock it with the highest quality of foxes they can buy. There is no business that can show such a large return on money invested. To build and stock a ranch to-day, however, takes a good deal of money. Foxes of good quality cost from \$1,500 to \$3,000 per pair and higher, and lumber, material and labor are all high. In order to finance a ten-pair ranch until returns are available would involve the outlay of some \$25,000 to \$30,000, and on this expenditure a well-managed ten-pair ranch should earn 100 per cent. and better annually on invested capital.

Foxes breed once a year and have litters from three to ten, a fair average being four pups a litter. Some ranchers do very much better than this, their average running as high as five and six to a litter. At present prices good fox pups at six months old are worth \$750 each to \$2,500 per pair. In making an estimate of prospective profit, we figure the value of a six-month-old pup at the conservative figure of \$500.

First year, ten pairs of foxes producing forty pups at \$500 each, equals \$20,000. These added to the ranch will give the second year thirty pair of breeders, producing one hundred and twenty pups at \$500 each, which equals \$60,000. Subsequent years should show an increasingly large return on the number of foxes in the ranch.

There are thousands of people in this country who would like to become fox ranchers who have not this amount of money to invest, experience, etc., and the opportunity of joining an association of fox ranchers, who only ranch such as have been outlined above (namely, high bred stock), in any amount that suits their convenience and pocketbook is offered.

A. H. Herrmann, Bayfield, Wisconsin, advises us that he has been a fox farmer for the past eight years; that he started in a very small way but has sold quite a few. He states that he has a very nice bunch of foxes, 12 pairs in number, and that he desires to keep ten pair for the winter. He states he had a very nice increase this spring and that he is only selling cross stock and getting into the silvers that will breed true to color. Mr. Herrmann seems, from the tone of his letter, to be an energetic fox rancher.



J. S. CHASTEK
Glencoe, Minn.

Mr. J. S. Chastek, another director of the National Association was born and raised in Minnesota and after completing his education in the Glencoe schools he engaged in telephone work in Minneapolis and other Wisconsin cities. At the age of twenty he returned from the West and took charge of his father's farm which he now owns. After living on the farm a few years he married and entered the drug business with his brother, Frank, in Burke, Idaho. While in the drug business he and his brother read a great deal of literature pertaining to the fox industry but not being satisfied with just literature they formed a small company and one of the boys went into Alaska to investigate. So satisfactory were the results that they immediately secured the Souki Islands in the vicinity of Petersburg, Alaska, and the following year they brought out their blue foxes from Green Island and also some interior Alaskan Silvers. Since that time Mr. Chastek and his brother have devoted their entire time to the fox industry. In the spring of 1920 J. S. Chastek left the Alaskan Ranch in charge of his brother, Frank, and came back to their old home in Glencoe, Minnesota, where he built a fine ranch which is stocked with a number of blue foxes and Alaskan Silvers. Mr. Chastek feels very proud of his ranch and feels perfectly satisfied that there is nothing in the world that beats the fox industry.

Gaffney & Leonard, owners of the Poiner Silver Black Farm, Petoskey, Michigan, for ten years by proper selection and handling of foxes have been able to place at their Petoskey ranch a line of foxes that are hard to beat. These men both started in the business of raising foxes in the fall of 1911. Mr. Gaffney had purchased a female for the sum of Fifteen hundred

dollars, which he mated with a male fox from the ranch of B. I. Rayner. From this pair, which he had in his own ranch, four pups were raised and from his share of this litter he realized Forty-five hundred dollars. During the following years he gradually increased his business and for the last five years has been manager of four companies, and at present the president of the Petoskey Company.

Mr. Leonard started his ranching experience with two pairs of foxes and now has a ranch of 25 pens on his farm near Summerside, Prince Edward Island, Canada. He is now manager and Secretary-Treasurer of the Petoskey ranch in which they expect to have fifty pairs of foxes the following winter.

FEWER LOSSES THAN IN ANY OTHER LINE OF BUSINESS

What we do and claim is borne out by figures is that in the fox industry fewer losses are sustained than in any other line of business. Many people, when they contemplate starting an industry, seem to think that it is well to experiment for a while with poorer stock. They always state that later on they expect to get better animals. How many of these, however, once they make a start with poor animals, ever change or clean out their ranch and install the better quality. Still again, there are others who, when they start, have only a limited capital, possibly enough to buy one pair, but of so doing, they want a number, therefore buy two or three pairs of the cheapest foxes they can get. Remember, in no other industry does quality count as it does in raising fur bearing animals, as the difference in value between a good and a poor pelt is very marked indeed. For the one you can generally obtain from \$500 up; for the other only \$100 or \$150. As it takes as much to feed a poor fox as a good one, everything is in favor of securing the very best at the start. The cost of feeding varies with the locality of the land, anywhere from \$5 to \$50 per fox per year. They reach maturity at eight months of age, and thrive on table scraps, mush, horse meat, offal, biscuits, etc. And, compared to any other class of business, equipment, maintenance cost, labor, depreciation, risk, etc., are almost nothing and makes comparison superfluous.

WHAT OTHERS HAVE SUCCEEDED IN DOING

A young ranchman of two years' experience purchased one pair of young foxes in the fall of 1916, paying therefor about two thousand dollars. In his quest for these animals he knew what he wanted and he hunted till he had found it. The price was altogether a secondary consideration to him. Six months later he was the proud possessor of five pups all of which sold at the end of the season for a price that returned his original investment, paid his keep and their's and left him with a good bank balance. The pair gave him another litter of five the next year, three of which he sold, retaining one vixen and a male which he later exchanged with a neighbor. Last season the old pair raised a third litter of five and the young pair showed a yield of six. Needless to say this man, who now owns a nice herd, sticks to fox farming and loves it.

The Berks- Lemont Fur Farm, Incorporated, Reading, Pa., from 5 pairs in April, 1921, produced 22 pups from young stock imported by them January, 1921, under adverse conditions. This corporation stock has advanced from \$1.00 per share to \$5.00 per share. The pups are valued in excess of \$36,000.

The case of a certain fox breeding company affords a second excellent illustration. In January, 1913, this concern completed its equipment with sixteen pairs of animals in its pens. The book value of each pair of animals averaged \$11,000. This

company has since paid yearly \$200,000 to its shareholders and at the same time increased its herd to a hundred pairs. The extensions to its equipment and its increase of breeding stock were effected without any enlargement of share capital.

INTEREST IN FUR FARMING

Interest in game and fur farming is steadily developing in Minnesota. Here and there individuals are embarking in the industry with a directness of purpose which indicates a positive faith in the future of this new and fascinating industry.

Minnesota, with its wealth of lakes and marshes and rocky, hilly timbered lands, furnishes ideal conditions for the game farmers. Climatic conditions are excellent, the humid, cool atmosphere making for a dense, dark pelage on fur animals that command top prices in the world fur markets.

The Department of Conservation is anxious to do all possible to stimulate the industry. Game farmers will oblige us by keeping us in constant touch with their operations. We would especially appreciate detailed reports of breeding experiments, whether successful or failures, also plans and photographs.

Subscribe to the American publication for the American breeder.



ARTHUR SCHLEICHER

General Manager and Secretary of Rest Island Silver Fox Company, Lake City, Minn.

Arthur Schleicher, General Manager and Secretary-Treasurer of the Rest Island Silver Fox Company, Lake City, Minnesota, is one of the youngest and biggest men in the fox business in the United States or Canada.

He was born and raised at Millville, Minnesota, where his father conducted a lumber and machinery business. "Art" was always very fond of all kinds of animals, and when a mere youngster he would trade anything from a jack-knife to a bicycle for woodchucks, coons, rattlesnakes or any other wild creature that the other boys might capture.

When he was eighteen his father took him in business with him, but he wanted to spend most of his time with his animals, so when his father told him that he would have to give up either his animals or the business he said: "Dad, I can't give up the animals." Friends said he was a fool to waste his time as he did, but he had an idea.

Some ten years ago a friend gave him a pair of red foxes he had dug out of a den in the banks of the Mississippi. This was the first big step toward his idea, so he spent much of his time studying the habits of these reds, and as there was very little literature on the industry at that time he had to work out his own ideas. Finally Mr. Schleicher got a "cross" fox and continued his experiments for several years. Six years ago he decided to go into the Silver fox business. He felt that with his experience in caring for the reds and crosses he could take a chance on the expensive silvers, so he sent for six pairs, paying what then seemed to him, a fortune.

From this start, he now has what is undoubtedly the largest and best equipped fox farm in the United States, but all was not easy in building up to the present proportions. During his days of experimenting he lost foxes. Sometimes it seemed that everything was against him, but he had unlimited faith that he could raise them profitably and stuck to it. Now everything has been reduced to a system on the Rest Island Ranch.

In addition to this enterprise, he is Vice-president and general manager of the Red Wing Silver Fox Company organized last year, and President of the Norwood Silver Fox Company, Norwood, Minnesota. He is also a director of the National Silver Fox Breeders Association of America.

FOX TAX INVALID

In answer to a request from the Minnesota Tax Commission, Attorney General Clifford L. Hilton recently handed down an opinion covering the taxation of wild animals held in captivity for breeding and commercial purposes.

The opinion states that no private property in wild animals exists so long as they remain in the state of nature, but that one may by industry acquire property in wild animals by so confining them within his own immediate power that they cannot escape and use their natural liberties. A temporary escape of a wild animal so confined will not divest the title of the owner if the owner promptly pursues or can identify.

The conclusion was that wild animals lawfully held in captivity are the subject of taxation in this state.

The constitutionality of the lieu tax provision in section No. 117, chapter No. 400, Laws of 1919, was also passed upon by the attorney general. This section is as follows: An annual head tax of 75 cents on each domesticated fox shall be paid to the county treasurer which shall be in lieu of all other taxes.

This tax provision is declared to be invalid because it is held that our tax laws may not be amended by implication by means of a provision appearing in a police regulation act, the title of which does not refer to taxation.

C. E. Beyries, Manager of The Wausau Silver Fox Co., Wausau, Wisconsin, has been spending a few days in Muskegon. While here he made arrangements for the exchange of some female foxes for male foxes. The Wausau Company, with which Mr. Beyries is connected, were winners of the sweep-stake prizes at the Muskegon Show last year.

ECONOMIC VALUE OF NORTH AMERICAN SKUNKS

DAVID E. LANTZ

Assistant Biologist, United States Department of Agriculture

About twenty States now have laws protecting skunks by a close season. These laws were passed in response to the wishes of farmers who recognize the usefulness of these animals in destroying noxious insects and to the demands of persons interested in conserving the fur resources of the country. A fuller understanding of the economic value of these creatures would no doubt result in protective measures in all the States.

Several causes have contributed to the present scarcity of fur animals. The increased demand for furs and their consequent high prices have led to close trapping; but the extension of farming, the reclamation of swamps, and the thinning out of forests have, by restricting the range of the fur bearers, effected what hunting and trapping alone could not have accomplished. The time is near at hand when the supply of pelts will be so far short of the demand that a further marked advance in prices will follow. Its effect on the wild life of forests and streams can readily be foreseen, and the problem of conserving the remnant of the fur supply and supplementing it from other sources becomes one of vital importance.

The three fur animals still fairly abundant in the United States are the muskrat, the mink, and the skunk. Of these the muskrat is most likely to retain its numbers, since it multiplies rapidly and, properly protected, is in no danger of extinction except where swamps are drained for agriculture. The mink breeds but once a year, and close trapping has already made it scarce over wide areas. Its choice of banks of streams and marsh lands as a habitat aids in its preservation, but unless given more adequate protection it can not long survive the high premium on its pelt. The skunk, although not yet in danger of extinction, is likely soon to be even more closely trapped, as its pelt has great intrinsic value and the demand for it has not yet fully developed. Within a few years the prices of this fur will probably be more than doubled.

The three fur animals named are economically the most important ones, because each is widely distributed and adapted to a variety of climatic conditions. If, as is believed, they can be domesticated or successfully reared in captivity, their breeding may become a means of profit in most parts of the United States. The skunks, especially, presents possibilities of widely extended usefulness in domestication.

Kinds of Skunks

The common large skunks are restricted wholly to North America. They range northward to Nova Scotia, the Hudson Bay country, and British Columbia; and southward through the greater part of Mexico, including part of Lower California to Guatemala. The number of species recognized is 9, with 8 subspecies, or geographic races. Fifteen of the forms occur within the United States. As these species and races are not separately recognized in the fur trade, they will not be so considered here. In general, the more northern forms have the finer fur; but in the fur trade the pelts are graded according to the amount of white in the pelage. In the best grade, No. 1, are placed those in which there is no white or in which the white areas do not extend much beyond the head and neck of the animal. No. 2 skins, or "short stripe," are those in which the white area does not extend beyond the middle of the body. No. 3 skins have long narrow stripes, while No. 4 are broad-striped. The skins are further graded in price according to the locality from which they were obtained. Northern skins

are more valuable because the pelage is finer, and the black color more intense than those from southern localities.

The four grades of skunk fur are due to individual variation in markings, and none of them is entirely characteristic of any particular species. An apparent exception may be found in the plains skunk and its races. Most of these are characterized by long narrow stripes, but because of their extra size they are more valuable than ordinary No. 3 skins.

A skunk belonging mainly to Central and South America differs from the common skunks of the United States in having a relatively shorter tail and the back broadly marked with white from the crown of the head to the end of the tail. Three forms are found within the United States as far north as Texas and Arizona. Their skins grade as broad-striped (No. 4), and as the pelts are heavy and much less densely furred than those of the more northern skunks, they command very low prices.

The distribution of little spotted skunks is more restricted than that of the others. While found somewhat farther south in Central America than the common large skunks, they do not range so far northward on the Pacific coast. Near the Atlantic coast they are unknown north of Georgia, but in the Alleghenies their northern limit is apparently in northern Virginia. In the interior they reach southern Minnesota, central Wyoming, southern Idaho, and southeastern Washington. On the coast they are found from southern British Columbia to Lower California.

Fourteen species and six races of little spotted skunks are known, 13 of the 20 forms occurring within the United States. These animals are considerably smaller than the other skunks. The total lengths of species in the United States vary in average from 320 to 560 millimeters (12.6 to 22.4 inches). The pygmy spotted skunk of Mexico is the smallest skunk known, the only specimen in the collection of the Biological Survey measuring but 9.4 inches in total length.

Spotted skunks, like the common large skunks, vary much in the amount of white in the fur as well as in the pattern of the spots or short stripes. The skin is strong and the pelage good in the more northern forms, but because of the small size and many white spots the fur is not very valuable. In the fur trade the skins are known as "civet," and, dressed in the natural color, they are now much in vogue for garments.

General Habits of Skunks

Skunks are mainly terrestrial. The little spotted skunks occasionally voluntarily climb trees in search of food, but the larger forms apparently do not climb unless driven to do so. None of the skunks swim unless forced into deep water, but all are fond of bathing in shallow ponds or streams. They have plantigrade feet and well developed claws, especially in front. The white-backed skunks of Central and South America are more given to digging than the others, and in general outline, shape of nose, and strong development of claws, they much resemble badgers, the only other group of the musteline family that have the feet better adapted for digging.

While skunks often dig dens in ordinary soils, they much prefer to use natural cavities in rocks or burrows dug by other animals, as the fox, badger, and woodchuck. They are said sometimes to attack and kill the woodchuck before taking its burrow. Fallen logs, recesses under stone walls or fences, and cavities under tree roots furnish the skunk convenient retreats.

If the floor of a building is near the ground, the space below is often used by the animals. Also, they nest under well covers, board walks, hay scales, and stacks, as well as in culverts, covered drains, abandoned cellars, and caves for storing vegetables. In winter the warmth of the floors of occupied dwellings or country schoolhouses seems to be especially attractive to them; and the animals often take up their abode in carelessly filled trenches conveying steam pipes from boilers to distant building, no doubt attracted by the warmth.

When skunks dig their own dens the burrows are seldom very long or deep. They go down below the ordinary frost line, and after a short lateral gallery, end in a rounded chamber containing the nest, a bed of leaves or dried grasses. Occasionally there are two entrances to a den.

In northern latitudes skunks lie housed in their dens during the coldest part of winter, but in mild weather they move about freely in search of food. Usually a considerable number occupy the same den, possibly members of a single family of the preceding summer, but sometimes the number seems too great to be only one family. As many as twenty have been captured at one time from a single den in winter. When thus disturbed skunks are found lively enough to prove that hibernation is not complete. As spring approaches the animals mate, and the pairs betake themselves to separate establishments. In the South this gregarious habit is not so marked, although the young usually remain with the mother until mating time in late winter.

Skunks are mainly nocturnal, but when not harassed by enemies they often hunt in broad daylight. They usually come out about sunset and spend the summer twilight in catching grasshoppers and beetles by springing upon them with the fore feet as the insects rise from the ground in flight. After dark the skunk depends upon its senses of smell and hearing to locate its prey. It digs many beetles and their larvae from the ground, leaving the surface thickly pitted with small conical holes where the insects were obtained.

Scent Glands

Skunks, in common with other members of the musteline family, have glands which secrete an extremely nauseous fluid. These consist of two oval sacs, located just beneath the skin below the base of the tail, one on each side; they are covered by muscular envelopes and open to the surface through ducts, one leading from each sac.

When the animal is on the defensive it elevates its tail and by contracting the muscles about the glands ejects the fluid through the ducts in two tiny streams of spray. A large, vigorous animal has been known to throw the fluid nearly a rod, but the ordinary distance is from six to ten feet. The liquid is sufficiently acrid to cause nausea, and, if it strikes the eyes, to produce temporary blindness. Skunks use this peculiar and effective means of defense only when attacked or badly frightened.

The persistence of skunk odor in anything touched by the fluid is remarkable. Clothing after contact with it is sometimes entirely ruined. Washing in chloride of lime or gasoline will remove the odor from one's hands, but chloride of lime will spoil the colors of most fabrics. Probably the best plan for removing the odor from garments is to wash them in gasoline or benzine and then to expose them to the action of sun and wind; another is to bury the garment for several days in moist soil; still another, to immerse it for a time in flowing water.

Breeding Habits

Skunks breed usually but once a year. The larger skunks mate early in spring (February and March) and the young, numbering from six to twelve in a litter, are born in May. They are blind and nearly hairless at birth and do not open their eyes until about three or four weeks old. Soon after this they begin to follow the mother about and continue with her

until almost fully grown. They are mature when about six months old and breed the following spring.

The breeding habits of little spotted skunks differ but little from those of the larger animals. They mate a little later in the spring and the litters seldom exceed six in number. On July 10, 1905, at Apache, Okla., the writer found a litter of six young with eyes not yet open. They were well covered with soft hair and had the characteristic marking of adult animals.

Food of Skunks

The belief that skunks feed mainly upon birds and birds' eggs is so general that statements to the contrary are often challenged. While the animals occasionally eat wild birds and poultry, the evidence furnished by stomach examinations is overwhelmingly favorable to skunks, and proves that on the whole they are beneficial. Scientific observers since the days of Audubon have nearly all testified to the usefulness of these animals, but popular prejudices are hard to overcome.

The Biological Survey has records of the contents of 62 skunk stomachs examined by its field men. Of these stomachs, 37 were of common skunks, 9 of white-backed skunks, and 16 of little spotted skunks. As the food of these differs but slightly, they may be treated together.

Grasshoppers and crickets formed a large percentage of the food of nearly half the skunks examined. Beetles and their larvae formed the most important item of food, being found in nearly two-thirds of the stomachs and in many instances being the sole diet. Fifteen animals had eaten injurious rodents, such as mice, rats, ground squirrels, and pocket gophers, while 3 had eaten carrion; 3 had taken lizards or salamanders; 3, crawfish; 2, fungi; 2 earthworms; and 6 berries, or other fruit. In one stomach the feathers of a bird were found, and in another, that of an animal trapped in a henhouse, parts of a domestic fowl. Two stomachs contained centipedes; 1, sawflies; 1, cicadas only, and another the pulpy stems of a succulent plant.

The 62 stomachs were of animals captured in every month of the year. While the number for some months is very small, analysis of results proves that skunks ordinarily eat food that is abundant and easily obtained. When insects are plentiful, these constitute the whole diet; when they are scarce, the food is of greater variety. Thus skunks taken from January to March had eaten small mammals, lizards, crawfish, earthworms, fungi, and a few beetles. The diet in April and May was mainly beetles, a small mammal being the only exception. In June, in every instance, there was an unmixed diet either of beetles, grasshoppers, or cicadas. Eight of 14 skunks taken in July had eaten insects exclusively. In August and September grasshoppers formed the chief diet, but a few beetles also were found. For the last three months of the year the insect diet was varied with other animal food, while berries were prominent in a few cases.

Insects eaten by the skunk seem to be mostly of injurious kinds, and the usefulness of this animal is more apparent when there is an invasion of large numbers of some insect pest, as grasshoppers, crickets, cicadas, army worms, or the like. An instance of this was observed in 1913 by E. R. Kalmbach, of this bureau, in northern New Mexico during an invasion of the range caterpillar. Skunks were abundant, and investigation showed that from 60 to 95 per cent. of their food was made up of the pupal cases of these insects. On large areas skunks had taken the majority of the pupae.

Skunks and Poultry

The chief indictment against the skunk is that it destroys poultry, and a few cases of serious losses due to the animal are reported. In many instances of alleged depredations by skunks, it is probable that minks or weasels were the actual culprits, and that skunks merely shared in the plunder by eating the dead poultry. When a farmer loses fowls and does not see the ani-

mal killing them he is often likely to mistake its identity. The common skunk can not climb to a roost, and would kill only birds found on the ground. Minks and weasels are expert climbers and are far more bloodthirsty. It is characteristic of the weasel to kill many victims when they are within reach. It makes a small but deep incision in the neck or under the wing of a fowl and takes the blood as long as it flows freely. It then attacks and kills another and another victim, until satisfied. Minks also kill a number of chickens at one visit to the coop, eating only the heads. A skunk, on the contrary, usually takes only one fowl at a time and eats of it until satisfied. Having once, however, acquired a taste for chicken, a skunk will return to the poultry yard night after night for a fresh victim.

A skunk making its home under sheds and other buildings roams about them at night in search of food, chiefly rats, mice, and insects. That it should occasionally learn to take chickens and eggs is not surprising, but this happens far less frequently than might be expected. It is a habit learned by a very few individuals and not a characteristic of skunks as a family. The writer visited a skunk yard in Ohio where chicks about the size of quail were eating from the same pans with the skunks. The owner stated that this occurred daily and that the skunks had never molested the chicks. Much testimony could be cited showing that skunks frequently feed with poultry in henhouses without molesting the fowls. Of course, the individual skunk that learns to kill and eat chickens should be destroyed.

Skunks and Game

Persons interested in the preservation of game often denounce the skunk, asserting that it destroys pheasants, quail, grouse, and other game; and sportsmen's clubs usually encourage the destruction of skunks, classing them with foxes, minks, and weasels as enemies of game. Sometimes side hunts are arranged for the destruction of "vermin," and in some places bounties are paid for killing these animals. So far as skunks are concerned, there is little evidence that they often disturb game.

The late Byron Andrews, of Erwin, S. Dak., informed the writer that he once found a pinnated-grouse nest containing eggs about to hatch less than 4 rods from a den which had long been in use by skunks. Mr. Andrews argued that the skunks surely would have destroyed this nest had they been fond of eggs.

The writer has repeatedly known quails to nest and hatch out broods within a few rods of a skunk den. A few eggs from one nest were eaten by crows, but a large clutch was left to hatch. The truth is that at the season when the native game birds are nesting the skunks have abundant insect food, and by the time this food fails the birds are strong of wing and seldom fall a prey to this mammal.

Skunks and Bees

The destruction of yellow jackets and bumblebees by skunks has often been noted. It is generally supposed that the juicy larvae of these insects are most appreciated, but the adults also are eaten, and probably the honey stored by the bumblebees.

Complaints of the destruction of bees in their hives by skunks have been recorded. The skunk approaches the apiary cautiously and scratches on the outside of a hive until the bees rush from the entrance to repel the intruder. The skunk shows much skill in capturing the insects and in dislodging them from his long hair, where many cling. He pays little attention to their stings. One or two visits to a hive are said to suffice nearly to destroy the colony. The possibility of skunks attacking an apiary may be entirely avoided by placing the hives upon a high bench.

Beneficial Habits of Skunks

The skunk feeds mainly upon insects, but its economic status can not be fixed by this habit alone. This must rest on the

character of the insects eaten. Not all insects are injurious, as certain kinds themselves feed upon injurious species and are therefore highly beneficial. The skunk is one of the most important mammals in its choice of harmful insects for its diet.

Skunks and Army Worms

The skunk is the best-known mammal enemy of army worms. The common army worm, the wheat-head army worm, and the fall army worm are all very destructive to small grains, corn and grasses, and their invasions entail heavy losses among farmers. The good work of skunks in destroying army worms has frequently been noticed. In a report on this insect in Pennsylvania, published in 1896, Dr. B. H. Warren brought forward much testimony of farmers as to the usefulness of skunks in the work of extermination. Also, he had examined three skunk stomachs which contained chiefly beetles and army worms. Prof. Luger of Minnesota also mentioned the skunk as one of the principal enemies of the army worm in that State.

Skunks and Tobacco Worms

Skunks are fond of the insects known as tobacco worms. Two species of these larvae very destructive to tobacco and tomato plants are the southern tobacco worm and the northern tobacco worm. Both species occur over wide areas in the United States, and in sections where no tobacco is grown they feed upon tomato and potato plants. While the worms are active skunks gather them from the plants, and when the worms go into the ground in the latter part of summer, the animals dig out pupae in great numbers. The evidence of this is found in numerous small pits bearing marks of the skunks' claws. The mature moths, as well as the larvae and pupae, are eaten by skunks.

Skunks and White Grubs

The larvae of scarabaeid beetles are known generally as white grubs, and among them number some very destructive insects. The larvae of "June bugs," or "May beetles," infest grass lands and feed upon the roots of grasses and other plants. They are among the chief enemies of the strawberry, and also seriously affect the potato, gnawing the tubers and often making large portions of the crop unfit for sale.

Skunks are very fond of these white grubs and spend much time digging for them. Strawberry growers recognize the usefulness of this animal and generally regard it with favor, although occasionally in its eager search for grubs it may uproot a plant, or do slight damage by eating a few berries. As white grubs commonly remain in the ground three years before emerging as mature beetles, each in this time can destroy much vegetation. They are quite secure from ordinary enemies. Except the crow, robin, and a few other species, birds find only those turned up in cultivation; the skunk, locating them by its sense of smell, digs them out of the ground.

Besides the larvae, skunks eat also many mature "May beetles," or "June bugs."

Skunks and the Hop Grub

Hop growers in New York, Michigan, and elsewhere have serious losses from the depredations of the hop-plant borer, or hop grub. That the skunk is the only efficient natural enemy of this moth has been attested by nearly all entomologists who have written about the insect. The skunk is said to listen at the base of the hop vine, thus locating the larvae at work. All hop growers value the skunk's services, and it was mainly through their efforts that legislation protecting this animal was first enacted in New York.

Skunks and Grasshoppers

In July, August and September, when grasshoppers are most abundant, they constitute the chief food of skunks, which consume enormous quantities. During the disastrous invasions of the Rocky Mountain locust in the plains country in 1873 and

1874 the skunk was reported as the principal mammal that destroys these insects. As other species of grasshoppers are always abundant and sometimes extremely destructive to crops, the constant services of skunks in checking their increase should not be forgotten.

Other Insects Eaten by Skunks

Except a few Hymenoptera and predatory beetles, nearly all the insect food of skunks consists of kinds injurious to plant life. Among them are cutworms, cicadas, crickets, spinx moths, and a beetle injurious to sweet potatoes in the South.

Skunks are among the few animals that prey on the Colorado potato beetle. Conway McMillan stated that "they consider the beetle a delicate morsel and spend many a busy evening in potato patches catching and eating the larvae and the mature beetles."

Skunks and Small Rodents

Although other mammals, including coyotes, badgers, foxes, minks, and weasels, do far more good by destroying noxious rodents than is generally realized, the skunk surpasses them all. It is sufficiently numerous in many localities to keep field mice in check, and reports from various parts of the country show that close trapping of skunks and other fur animals is often followed by an increase in depredations by mice. C. W. Douglas, nurseryman, of Waukegan, Ill., writing to the Biological Survey in 1906, attributed the abundance of meadow mice in that vicinity directly to the scarcity of skunks, weasels, and other natural enemies.

Besides meadow mice, skunks destroy also many other injurious native rodents, including white-footed mice, pocket mice, jumping mice, cotton rats, kangaroo rats, wood rats, chipmunks, and rabbits.

The skunk is especially useful in destroying the rats and mice that commonly infest farm buildings. It makes itself familiar about the premises when these rodents are abundant and preys upon them persistently. If not disturbed it will remain until all are destroyed.

The little spotted skunks are remarkably efficient as destroyers of rats and mice. They are small and nearly like a weasel in shape; they are quick in their movements, and can follow rats and mice into smaller crannies than the ordinary skunk can enter. In Kansas the writer once lived in a house with cellar openings on the outside. The dwelling had been unoccupied for a year and during this time the cellar had been used for storing corn, with the result that the entire house had become infested with rats and mice. A short time after the writer occupied the house it was noticed that a prairie spotted skunk had taken up its quarters in the cellar and night combats with rats were often heard. The skunk was frequently seen, but it was carefully left unmolested. After a few weeks the rats and mice had all been killed or driven away, and the skunk then left the premises.

There is much similar testimony to the usefulness of skunks as rat catchers. C. J. Maynard says that the Florida spotted skunks are easily domesticated and they are frequently used in houses for catching mice. Sometimes the animals are captured and the scent glands removed, but they are often simply decoyed about the premises by exposing food, when frequently they take up their abode beneath buildings and become so tame as to enter them in search of their prey.

Undeserved Prejudice against Skunks

The early settlers of America were acquainted with the European fitchet weasel, and promptly applied its common name "polecat" to the skunk on account of its odor. The polecat of Europe is far more destructive to poultry and game than are skunks. Its bad reputation was transferred with the name, and circumstances have been unfavorable for a reversal of opinion. They feed mostly at night when their habits can not be ob-

served, and few persons have undertaken to dissect their stomachs. The public are extremely slow to give up prejudices of long standing, as those against hawks, owls, snakes, and skunks; consequently the usefulness of these animals has to be proved over and over before their needless and indiscriminate slaughter can be checked or adequate laws for their protection enacted.

Change of opinion about the value of skunks to agriculture has been very slow. Naturalists have generally given testimony favorable to the animals, but until recently their views were not reflected in legislation. Indeed, most of the laws for the protection of skunks have been passed because of a scarcity of furs and with the purpose of conserving a commercial resource.

Protection of Skunks

The earliest legislation for the protection of skunks grew out of appeals from hop growers in New York. The legislature in 1893 having delegated to county boards of supervisors the right to enact local game laws, four counties in 1894 provided protection to skunks: Broome and Chenango Counties made a close season from March 1 to November 1; Onondaga County, from May 1 to November 1; Oswego County at first entirely prohibited the taking of skunks, except in a few towns and Oswego city, but in the following year it made an open season for skunks from November 1 to January 1. The State legislature began providing close seasons for skunks in various counties in 1896 and added others in succeeding years, until in 1906 the skunk law applied to 22 counties. Later the close season for skunks and other fur animals was made uniform for the entire state. The open season is now (1913) from November 1 to January 31, inclusive.

Ohio enacted a law in 1902 prohibiting the taking of skunks from February 1 to November 1, except when kept in inclosures for their fur or when doing injury on the premises of farmers. In 1913 the season for taking skunks was shortened and digging or smoking them from dens or destroying the dens was prohibited.

In West Virginia a general law passed in 1903 protects skunks throughout the year, provided that the law be first approved by a vote of the citizens in any county wishing to adopt it. Apparently this law is entirely inoperative, none of the counties having voted on its adoption.

In response to a general request from dealers in raw furs, the Michigan Legislature of 1899 passed a law forbidding the taking of all furs in September and October. It was not until 1909, however, that the skunk was specifically named as a protected fur animal in that State.

At the end of the year 1916 skunks were protected by close seasons in twenty States. The open seasons are as follows:

Maine and New Hampshire, November 1 to April 30; Vermont, October 20 to March 31; Rhode Island, November 1 to April 15; New York, November 10 to February 10; New Jersey, November 15 to April 1; Delaware, December 1 to March 10; West Virginia, November 1 to December 31; Tennessee, noon, October 15, to noon, January 15 (three counties, September 1 to January 31); Kentucky, November 15 to December 31 (may be taken by dog or gun, October 1 to February 15); Ohio, November 15 to February 1; Indiana, Illinois, and Michigan, November 1 to March 31; Missouri, November 1 to January 31; Kansas, November 15 to March 14; Arkansas, October 1 to April 30 (act of 1917); Louisiana, November 1 to February 15.

Two counties of Wisconsin (Washington and Ozaukee) have open seasons for skunks, October 10 to February 1; the other counties have no close season. In North Carolina nine counties protect the skunk by close season.

Besides the close season, several of these States prohibit the digging of skunks from their dens or driving them out by the use of smoke or chemicals.

A close season of about nine months is well adapted to conditions existing in most parts of the country, where a reasonable period for fur taking is desired without encroaching on the season of breeding and growth of the animals. In parts of the country where skunks have been trapped to excess, a close season for a few years would probably restore their numbers.

Commercial Value of Skunks

The skunk stands second in importance among the fur animals of the United States, the total value of the annual catch being exceeded only in the case of the muskrat. The mink is third in value. Most of the skunk skins have been marketed in London, but their use is increasing in the United States and a percentage are now dressed and made up here.

No complete statistics of the London sales of skunk skins prior to 1858 are available. The total annual sales since that date are given in the following table. The statement includes skins of civet (the little spotted skunk), although in recent years these have been catalogued and sold separately.

Year	Number of skins	Year	Number of skins	Year	Number of skins
1858 ...	18,255	1878 ...	285,103	1897 ...	872,326
1859 ...	84,886	1879 ...	444,224	1898 ...	482,130
1860 ...	148,346	1880 ...	517,191	1899 ...	426,610
1861 ...	116,609	1881 ...	350,594	1900 ...	695,686
1862 ...	30,969	1882 ...	443,911	1901 ...	696,961
1863 ...	94,187	1883 ...	424,645	1902 ...	973,695
1864 ...	136,361	1884 ...	596,243	1903 ...	987,550
1865 ...	103,755	1885 ...	560,388	1904 ...	911,923
1866 ...	76,602	1886 ...	489,473	1905 ...	952,549
1867 ...	137,407	1887 ...	625,802	1906 ...	1,225,582
1868 ...	94,480	1888 ...	526,263	1907 ...	1,368,475
1869 ...	111,001	1889 ...	536,864	1908 ...	1,037,641
1870 ...	114,665	1890 ...	688,946	1909 ...	1,115,910
1871 ...	45,670	1891 ...	567,398	1910 ...	1,282,001
1872 ...	206,320	1892 ...	635,800	1911 ...	2,009,465
1873 ...	263,704	1893 ...	575,472	1912 ...	1,821,485
1874 ...	191,980	1894 ...	739,228	1913 ...	1,659,773
1875 ...	243,493	1895 ...	542,885	1914 ...	1,921,869
1876 ...	331,914	1896 ...	796,750	1915 ...	615,000
1877 ...	283,141				

The present values of skunk skins in the raw-fur market (prices current in New York, are about as follows: No. 1, \$2.50 to \$4.25; No. 2, \$1.50 to \$3.25; No. 3, \$0.75 to \$1.80; No. 4, \$0.35 to \$0.90. These quotations are slightly above the average of the last five years. Skunk fur is intrinsically of high value; the pelts are strong and the luster of the pelage is rich. This lustre, however, decreases with long wear and exposure to sunlight.

Until recently skunk fur has not been popular at home. For many years almost the entire output was absorbed for European manufacture. The processes of deodorizing and dressing the skins in America have been improved greatly and the fur is gaining steadily in popularity. The present extreme scarcity of Russian sable and other dark furs from abroad favors the market for skunk.

The oil of the skunk is used in some parts of the country for medicinal purposes. It is popularly believed to relieve rheumatism and various affections of the throat when applied externally. There is, however, no great demand for it.

The flesh of the skunk is sometimes used as food. It was formerly a common article of diet among North American Indians and trappers.

Trapping Skunks

Trapping is the best method of taking skunks for their fur. Shooting spoils the pelt and generally results in its defilement

by the animal. A moderate amount of trapping may be done each winter in many localities without seriously affecting the supply of this fur, and sometimes without greatly interfering with the beneficial work of the animals against farm pests. If no trapping were done skunks in some places might become noxious because of their abundance.

Skunks, being neither suspicious nor cunning, are easily trapped. They are often caught in unbaited traps placed in the paths they travel; yet the head of a fowl, a sparrow, or a dead mouse makes an excellent bait. Trappers use a medium-sized trap (No. 1) and try to take advantage of the peculiar habits and haunts of the animals, placing the trap in such places as the paths they travel to obtain water or near the openings to their dens. The trap should be set lightly (the trigger filed down to fit the notch loosely), and a little light trash (leaves or grass) may be scattered over it with advantage. The bait may be placed on the pan, or a little beyond the trap, or between two traps. The path may be narrowed artificially by setting upright sticks in two converging rows along it and the trap set in the narrow place.

Skunks when trapped do not often discharge their scent so as to defile the fur, but care is needed to remove them from the traps. With caution one may approach near enough to strike the animal a quick blow across the back, paralyzing the hind parts and preventing the discharge. Some trappers use a wire noose attached to a pole. The noose is cautiously lowered over the head of the skunk, and by a quick jerk the animal is lifted and strangled.

Many trappers use a tight box trap for taking skunks. When one is caught the box is carefully lifted and carried to water deep enough to cover it. If no water is available to drown the animal, it may be killed in the box by carbon bisulphid or chloroform.

Raising Skunks for Their Fur

Although skunks were often tamed and kept as pets or for destroying rats and mice, no attempt to raise them for their fur seems to have been made until within the past thirty years. About 1885-86 there was a large foreign demand for the pelts and close trapping had led to a scarcity of black skunks. The feasibility of developing a strain of black animals by selective breeding came under consideration and many experiments in skunk farming were undertaken. Falling prices and other hindrances soon caused breeders to abandon their attempts. One firm in Pennsylvania claimed to have spent \$25,000 in lands and equipment in an unsuccessful venture in skunk raising.

The high prices that have prevailed in the past few years have led to renewed discussion of the subject of skunk raising, and at present not a few persons are endeavoring to produce this fur in captivity. While some breeders have encountered difficulties, others have been quite successful. On the whole, there are excellent reasons for believing that a profitable industry may be developed. Skunks are less wild than most of the musteline family, and their miscellaneous diet permits a good deal of latitude in feeding, whereas the marten and the mink require a diet almost exclusively of meat. The problem of providing pens is also less complicated in the case of skunk. The odor of the skunk may be entirely disregarded; but if the breeder prefers to do so, he may remove the scent glands and have his animals as harmless as cats. The popular belief that hydrophobia will result from a skunk bite is an error. There is no more danger from this source than there is in handling cats or dogs.

If you believe in an American publication for the American fox and fur farmer show your belief by sending in your subscription and your advertising contract.



F. C. CHEATHAM

Owner of Northern Wisconsin Silver Black Fox Farm,
Three Lakes, Wis.

Mr. F. C. Cheatham, one of our Wisconsin directors is located at Three Rivers, Wisconsin. Mr. Cheatham came from Missouri where he was engaged in a merchantile business until six years ago. He then spent two years on a ranch in Utah and four years ago started his ranch at Three Lakes. His ranch now consists of ten pens but he is going to enlarge it either this fall or next summer. His average increase this year was about three pups to a litter, which is somewhat above the average increase of most ranches. The ranch itself is situated on Medicine Lake, which is one of the Eagle River chain of lakes, the largest chain of lakes in the state, being about fifty miles from one end to the other. Mr. Cheatham is getting started in the right direction and is having his foxes registered in the Association. The name of his ranch is the Northern Wisconsin Silver Black Fox Farm which he has also had registered in the Association's Herd Book for his exclusive use.

DECREASE IN THE NUMBER OF PELTS AND INCREASE IN THE PRICE OF FURS

Percentage of decrease in number of pelts 1892 to 1911 over 1882 to 1891: Fox, 50 per cent., and mink, 50 per cent. This decrease in the supply of fur has been one of the chief factors in the rapid advance in the price of furs during the same period, which, however, far exceeds the ratio of decrease in supply, as the following Government figures will show:

Increase in the price of furs 1891 to 1911 over 1882 to 1891: Silver-black fox, 300 per cent., and mink, 300 per cent.

We solicit correspondence on any subject connected with fur farming and will take pleasure in answering fully any

questions you may care to ask. Record prices paid for silver fox skins at the recent fur auction sales, season 1919 and 1920: London sales, \$1,750; St. Louis, \$960; New York, \$810; Montreal, \$1,225; Private Treaty, New York, \$1,425. The above figures serve to show the intrinsic value of the animal dead. Foxes of the above quality living to-day have produced \$75,000 to-day in progeny and are still living.

The following report of the operation of a fox ranch in New Brunswick was published in the March, 1920, issue of the Black Fox Magazine. It was started in 1914 with two pair of foxes, with the following result:

1914—First	year	2 pair produced	9 pups
1915—Second	year	4 pair produced	16 pups
1916—Third	year	7 pair produced	24 pups
1917—Fourth	year	18 pair produced	81 pups
1918—Fifth	year	18 pair produced	99 pups
1919—Sixth	year	35 pair produced	172 pups

of which 163 were raised to maturity. The litters born to the thirty-five pair last year were as follows:

Six litters of seven each equaled	42 pups
Six litters of six each equaled	36 pups
Nine litters of five each equaled	45 pups
Nine litters of four each equaled	36 pups
Four litters of three each equaled	12 pups
One litter of one each equaled	1 pup

172 total

United States Dept. of Agriculture Bureau of Biological Survey

HINTS ON THE CARE OF OTTERS

Traits

Otters are playful, docile, and intelligent. They come when called, and show attachment for their keepers. Water is their proper element, their structure being better adapted for swimming than for running.

Food

Wild otters subsist mainly on fish, frogs, crawfish, and other aquatic creatures. When these fail they kill warm-blooded animals. Young otters have been raised in confinement on a diet of milk and cornmeal mush, supplemented by fish or meat as they matured. A reliable source of fresh fish obtainable at slight cost is essential to success in raising otters for fur.

Breeding

In the Northern States otters probably mate in February. The young are born about two months later, and are mature when one year old. The number in a litter ranges from one to five. Otters have been bred in confinement.

Inclosure

The size of an otter yard should not be less than 12 feet by 20 feet. It should contain a pool of clear water two or three feet deep, fed from a constant source.

The fence may be built of upright boards, galvanized sheet iron, or 2-inch-mesh, 14-gauge, wire netting. Its height must be three and a half feet greater than the maximum depth of snow. An inward horizontal overhang, of sheet iron one foot wide, must be provided at the top of the fence, while the bottom should extend into the ground a foot and a half.

The den, two feet wide, two feet high, and five or six feet long, should be tightly built to exclude drafts. The entrance should be near the end of one of the sides. It is important to construct dens so they may be opened from time to time for disinfection.

HINTS ON THE CARE OF MARTENS

Traits

Martens are active, hardy animals which tame readily and make engaging pets. Their fur when prime is thick and soft.

Food

Wild martens feed largely on rabbits, squirrels, mice, birds and insects, but in captivity, they relish milk, bread, boiled rice, cornmeal and graham mush, table refuse, chicken heads, butchers' scraps, or cooked prunes, and other fruits. Large bones with fragments of meat attached are excellent for their teeth. The livers and entrails of small animals designed for martens should be removed, as these organs frequently contain parasites. Fresh water should be supplied daily. Care should be taken to give the animals only as much as will be eaten immediately, for overfeeding is as injurious as under-feeding. Females with young should always be fed twice a day; others may be fed once or twice a day as may be convenient.

Pens

Pens are best located where partially shaded by trees, and where the animals can occasionally enjoy a sunbath. Each individual must have a pen and a nest box to itself, though after becoming accustomed to captivity and to their quarters it is usually feasible, except while the young are with their mothers, to allow the occupants of several adjoining pens to run together at times by leaving open the connecting doors. This will permit the keeper to judge the preferences of the animals for one another, and thus aid him in mating them satisfactorily. There is always danger, however, that some one of them will suddenly become savage and kill a comrade. In any case, each animal should be fed in its own pen. Convenience and economy require that pens be built in a series, which may be either single or double. They should each be at least 6 by 8 feet on the floor and 8 feet high. The floor should be made of rock or cement or ½-inch mesh galvanized sandscreen, covered with sand or sandy loam, not clay, to a depth of 3 or 4 inches. The walls and top may be made of 1-inch mesh galvanized wire netting, No. 16 wire or larger. A roof to keep out an excess of snow and rain is sometimes desirable. A section of a tree, with branches, set in each pen will be appreciated by these active creatures.

Nest Boxes

Nest boxes should be weather-proof and so placed as always to be in the shade. They should consist of two compartments—the entry to the inner or nest compartment being through the outer room, which is designed to exclude light and draughts of air from the nest. The doorways should be about 5 inches wide and 6 inches high. Nest material will remain in place if the inner entrance is near the top of the partition. Nest boxes should be detachable from the pens, and so constructed as to be opened for cleaning. Bedding should not include anything which can injure fur, such as burs or chaff.

Breeding

One male is sufficient for four to six females. Mating normally occurs in January or February. Clean and replenish the nest for each female prior to the time the young are expected, and do not open it again until the young are able to come out. During this period no noise or other disturbance in the vicinity of the breeding pens should be permitted. In selecting breeding stock consider disposition as well as size and fur.

Diseases

Diseases are easier to avoid than cure. Putrid or otherwise unwholesome food causes indigestion and diarrhoea. The excrement of an animal is an index to its health. It should be firm but not dry. Sick animals should be isolated. Animals suffering from colds or pneumonia should be kept warm in

quarters which are dry and well ventilated. Intestinal disorders may usually be corrected by a diet of eggs and fresh beef. Wounds when fresh should be treated with turpentine. Sores should be washed daily with castile soap in warm water, and treated with hydrogen peroxide. Insect powder dusted into the fur helps to keep down the number of lice and fleas.

General

Be sure to see every animal every day. Examine nests frequently. Keep food and water pans clean. Attend to the animals at the same hour each day. Tame them by remaining in their sight as much as possible, and by inducing them to take food from the hand.



SMART MOLESKIN DRESS. SILVER FOX SCARF AND MOLESKIN TURBAN

Shown by Milgrim, New York

Courtesy of "Fur Trade Review," New York City

SUCCESS AND FAILURE

I just read the fur farming and am going to tell of my failure as a skunk farmer.

Three years ago there were two skunk farms around here. One had about three hundred skunks, the other about five hundred. I did not have quite as many. (When I speak of "I", I mean my partner and myself.)

We got our start by catching them in the fall with steel traps, dogs, and we also made some traps, that caught them just the same. I think we had about 40 skunks in all when the season was over.

We visited the other two farms quite regularly, as we were beginners and needed advice.

The next spring both men were drafted in the army and both men sold all skunks, skinned them first and shipped them. One had started up again, but the other got crippled in France and I don't suppose he will ever raise skunks again, as he can't get around very good.

My partner and I thought we had a good start for the first year, but to our surprise, our skunks began to die in the spring, and by the middle of the summer we didn't have a skunk left. We called in a veterinary, but he could do us no good.

But as the old saying goes, you can't keep a good man down. We are going to try again.

Hope other fur farmers will contribute their bit, whether they succeed or fail.

HARTMAN SCHWARTZ, JR.
Hoopeston, Ill.

KARAKUL SHEEP

An Article Pertaining to the Upbuilding of the
Karakul in the United States

By A. A. ALBRIGHT, Dundee, Texas

Native Home of the Karakul Sheep

This breed of sheep takes its name, Karakul, (Black Lake), from a province of Central Asia, comprising about 85,000 square miles, and controlled by the Russian Empire. A large part of the area has an elevation of from 6,000 to 8,000 feet. In all parts of Bakhara, the summers are very hot and dry in the low lands, with winter temperature of 20 degrees Fahrenheit. In the highlands, where sheep are more numerous, still lower temperatures and longer winters prevail. The sheep are moved from place to place on account of scant vegetation, and are never corralled, so they have the flocking habits of the best.

Appearance and Characteristics

The Karakul is a sheep of medium size, with black face and legs; the fleece is black until one or two years old, then turns gray. The length of the fleece at twelve months of age is from six to ten inches, of a wavy, coarse wool. At birth the lambs are a glossy black, with tight penciling curls and figures. I have noticed those with the finest pelts have generally white spots on head and end of tail. The face is decided Roman-nosed. Below the eyes the sweat-glands (or palpebral) are very large, it is claimed, to give them more power to resist heat. The body is of extra length, with rump somewhat drooping, and with a broad tail extending to the hock. The lower part of the tail is sharply curved. In matured sheep, and in a fat stage, the tails will weigh from fifteen to twenty pounds. In medium shape the tail weighs from five to ten pounds. The ears in some animals are very small and in others very large. The teeth are large and hard, and will not wear down on dry

grasses, as is often the case with our native breeds. They show to be very hardy and long lived; are very bold and will fight for their young more than any other breed of sheep.

Qualities of the Karakul

- 1—Produce valuable lamb fur.
- 2—Make the finest flavored mutton to be found.
- 3—Are heavy shearers of rug and blanket wool.
- 4—Ewes are extra good mothers. A Karakul never leaves her lamb.
- 5—Are extra good milkers. Lambs will outgrow any other breed on our native grasses.
- 6—Are very hardy; have the best of teeth, and will stand more hardships on our Western ranges than any other breed.

Breeding Methods

Karakul rams and high grade crosses are yet very scarce in this country. The Lincoln is considered the best sheep to cross them on, though in my experience, after the first cross, any kind of sheep are good. In bringing them up to fur producing one must change the fibre, as none of our breeds carry fur qualities. The Merinos are harder to breed the Karakul into than are the long wool breeds, as they are a stronger type.

In using one-half blood rams the off-spring will have no value for fur, but the Karakul blood will give them hardiness and quick-maturing qualities. This may also be said of the three-fourths rams to some extent. In using full-blood rams on native sheep some of the offspring pelts have fur value, while others have none, though the offspring will favor the sire in looks. One must have three-fourths Karakul blood in lambs of the right kind to be worth killing for fur. For a number of years, however, sheep having three-fourths Karakul blood will be too valuable to kill for fur, as they will be preserved for breeding purposes in impregnating other flocks with their good qualities and bringing them slowly up to the fur.

In Starting a Flock

To start with the Karakuls in the most economical manner, use full-blooded rams or the highest crosses obtainable. In using these valuable rams you should have at least 100 ewes to breed to each ram, as a ram will easily take care of 100 to 125 ewes if properly handled.

In smaller flocks one should use only high grades. It will take longer to bring the flock to fur producing, though at a less cost for rams. While one is grading his flock up he is gaining other qualities that are needed—hardiness, rustling qualities, lengthening of wool, etc.

For range purposes, I should say to start with three-fourths or seven-eighths rams. Breed enough ewes so one can have a flock of lamb ewes with Karakul blood, and these, when bred back to a seven-eighths ram will produce fur of some value. Pelts from lambs of this cross that happen to perish from storms or other causes can be saved and sold at a fair price. When high enough in Karakul blood ram lambs can be killed at one day old and their pelts will be worth more than if the animals were grown for mutton, especially if the owner has a surplus of rams. I believe that our Western States in the near future will be producing the lambs fur that our country is now getting from Asia, at a cost of \$14,000,000 a year.

Commercial Fur Production

The furs which are taken from Karakul lambs are known as Persian Lamb, Astrakhan, Broadtail and Krimmer. In recent seasons ladies' coats made from skins similar to Astrakhan have been sold as Karakul, Persian, Astrakhan and Broadtail pelts are all black in color, but vary in the form and tight curls and have the greatest value. Astrakhan have longer hair and curl is more open. Broadtail skins are taken from lambs prematurely born; have a very fine figure, soft pelts and light weight for cloaks.

TRAPPING ON THE FARM

By NED DEARBORN

Assistant Biologist, Bureau of Biological Survey, United States Department of Agriculture

Turning Pests Into Profits

Every farmer finds it necessary to kill certain animal pests in order to keep them from injuring his property or crops. This he sometimes does by means of poison, but more often he employs traps. A knowledge of the traits and habits of the animals and of proved methods of capturing them is important if he is to combat them successfully. Besides such out-and-out pests as rats, mice, and pocket gophers, some other animals are occasionally harmful, but having valuable skins and being classed as fur bearers are given special consideration.

The lively demand for all kinds of fur puts into the pockets of American trappers millions of dollars a year, which, until the harvest, has not cost them a single effort. Moreover, several of the furry tenants of the farmer not only are not pests, but are useful while alive. Foxes, for example, destroy many rabbits and mice, both of which when abundant are very destructive to fruit trees and crops. Skunks are exceedingly beneficial, for they feed almost entirely on mice, grasshoppers, crickets, white grubs, and other farm pests. It is only in exceptional cases that either foxes or skunks attack poultry; it is far better to keep poultry in suitable inclosures or to kill the individual animal which is doing damage than to adopt a policy of general persecution toward the tribes to which the few offenders belong.

The food habits of other fur bearers are usually of less importance. Weasels are excellent mousers; minks feed on frogs, fish, mice, and other small animals; while raccoons and opossums eat, in addition to a wide variety of neutral or harmful small animals, many kinds of vegetable food of little or no direct value to man. Muskrats and beavers live on wild products of marshes and woodlands, and only in rare instances are their burrows or houses objectionable.

In short, speaking generally, fur animals transform uncultivated and useless materials into valuable peltries, without expense or attention on our part. They are doing this throughout the country. When the corn is in the crib, and the landscape has been browned by frost, farm lads take down their traps with happy expectation and set out to gather unearned increments of fur.

The purpose of this article is to explain methods of trapping the small wild animals of the farm, methods of preparing skins of fur bearers for market, and methods of improving the fur catch from year to year.

How To Catch Pests

The most destructive group of pests on the farm includes the small gnawing animals known as rodents. Among them are house rats and mice which have been brought to this country from the Old World, and several kinds of native rats and mice, as wood rats, rice rats, cotton rats, kangaroo rats, meadow mice, pine mice, white-footed mice, and pocket mice. Ground squirrels of several kinds are found throughout the Western States and in many localities are very destructive to forage and grain. Prairie dogs of the plains region, related to ground squirrels, also destroy a great deal of forage in the vicinity of their "towns." Here and there woodchucks, or groundhogs, also related to ground squirrels, are destructive to field and garden crops. In mountainous and timbered regions porcupines are more or less destructive to orchard and other trees. These animals are all easy to trap, the main difficulty being that they frequently occur in great numbers.

Various styles of traps are used extensively in catching all kinds of rats and mice. Such traps are usually baited with a piece of nut meat, pumpkin seed, or rolled oats, as may be convenient. It is advantageous to use more than one kind of bait at a time, inasmuch as these animals sometimes take one kind of bait in preference to another. House mice have a habit of following the walls of a room as they run about, and a trap placed behind a table leg or small object where mice naturally run need not be baited. House rats are sometimes wary and difficult to catch in traps set in the ordinary way. A small steel trap set in a pan of bran or oats and carefully covered will usually catch the shyest rats. It is well to scatter small pieces of meat or bread over the bran. The wire trap is more effective when covered by a piece of cloth or by a wooden box having a hole in one end through which rats may pass directly into the trap.

Wild rats and mice may be trapped readily at the entrances to their burrows or in their runways, the traps and the manner of setting them being the same as employed in catching house rats and mice. Prairie dogs, ground squirrels, and woodchucks are usually caught in steel traps set at the entrances to their burrows. Sometimes it is not necessary to cover the traps, but as a rule it is advisable to press them well into the earth and cover them lightly with grass or leaves, or whatever may be at hand. A trap should always be chained to a stake or other firm object so that an animal caught in it can not descend into its burrow or escape with the trap.

Porcupines may be caught by means of an apple, a carrot, or a bit of green corn placed in a crevice behind a No. 2 or No. 3 uncovered steel trap, as these animals are quite unwary. They may also be caught in traps set at the entrances of their dens, which are often located in cliffs.

Cottontail rabbits are frequently destructive to young fruit trees and garden truck. They may be caught in box traps baited with sweet apple, carrot, or pumpkin, or they may be taken in shelter traps. Where rabbits are abundant shelter traps are occupied by them more or less regularly during the day. A dog trained to hunt rabbits will give warning when one is inside a trap. To prevent the quarry's escape a stick with a disk at the end of it may be thrust into the entrance, after which the top of the trap may be opened and the animal caught in the hand. The skin and flesh of trapped rabbits are superior to those of rabbits which have been shot.

In many of the Western States the rodent most destructive and most difficult to capture is the pocket gopher, which spends most of its life underground. Owing to its subterranean habits it has been found expedient to devise special kinds of gopher traps. In making its burrows the gopher throws up on the surface of the ground the dirt it excavates. The trapper, opening a fresh mound, sets a gopher trap well within it and covers the opening behind the trap with a piece of sod, or whatever may be at hand. It is possible to catch gophers in No. 0 steel traps, but the process is more laborious than that of catching them in the traps specially designed. When steel traps are used, a main burrow is located by prodding with an iron rod, then a piece of turf is removed from it and an excavation made deep enough to allow the trap to be set flush with the bottom of the burrow, after which the piece of sod which was removed is returned to its place. Gopher traps do not require bait.

Besides the rodents, which constitute the majority of farm and garden pests, there are certain other creatures which are

sometimes obnoxious; among these are stray cats, which too often destroy useful birds. The removal of such animals may be effected with neatness and dispatch by means of a box trap so arranged that the cat in reaching for the bait, springs the trap and releases an ounce of carbon bisulphid, which quickly and painlessly asphyxiates the animal. One can be made by any ingenious boy at very slight expense. Fresh meat or fish should be used in baiting it.

In many localities one of the worst farm pests is the crow, which is often destructive to grain, eggs, and young chickens. Crows may be caught in steel traps, size No. 1 or No. 2, carefully covered with soil and baited with whatever they are destroying—eggshells, for example.

Such hawks and owls as are destructive may sometimes be caught in small jump traps placed on top of high posts overlooking poultry yards, the trap being fastened securely to the post. As soon as the need of protecting chickens or other animals has passed, the pole trap should be removed so as to avoid risk of killing other birds.

Another pest is the English sparrow, which destroys no small amount of grain during the ripening period. Traps made from fine mesh wire catch these sparrows very satisfactorily. Rolled oats or crumbs of bread should be scattered around and beneath these traps to attract the birds. In catching sparrows one should be very careful to see that no native birds are destroyed.

How To Catch Fur Animals

The devices intended for capturing fur animals are numberless, ranging from simple deadfalls, constructed on the spot out of such convenient materials as saplings and slivers, to patented products of factories. Although certain styles of traps may be used for catching many different kinds of animals, others are used exclusively for a single species having peculiar habits which make ordinary traps ineffective.

Steel traps another traps likely to be carried away by the animals caught in them are either chained fast to a stake or other immovable object or attached to a grapple or clog which yields when the captured animals make their first frantic efforts to escape, but which cannot be dragged far. A sapling makes an excellent drag, the chain being attached two or three feet from the larger end, which makes it move more or less crosswise and soon become fastened in bushes or weeds. Traps chains should always include a swivel.

In setting a trap a careful trapper always springs it several times to assure himself that it is going to work properly. Before the trapping season opens, steel traps should be cleaned, the joints oiled, and any necessary little repairs made.

Striped Skunks

The striped skunks are found in almost every part of the United States. Sleeping by day in burrows or beneath stones, buildings, or trees, they come forth at night to feed on insects, small animals, and carrion. Sometimes, but not often, they destroy poultry. Among the signs revealing their presence are numerous shallow pits one or two inches deep, noticeable in fields and pastures where white grubs are unearthed by these keen-scented animals; these pits are conspicuous late in fall, when repeated frosts have laid vegetation low. The holes the animals occupy are clear of spiders' webs, have a slight skunk odor, and frequently have a few skunk hairs about the entrance. Their droppings, consisting largely of the hard parts of insects, are readily distinguished from those of other animals of their size.

Skunks are generally caught in No. 1 or No. 2 steel traps set unbaited at the entrances to their dens. The stake to which a trap is fastened should be set the full length of the chain from the hole to enable the trapper to dispatch his catch with as little unpleasantness as possible.

When a den is inhabited by more than one animal, time may be saved by setting several baited traps in its vicinity instead of setting one trap at its entrance. Skunks are often caught in baited traps set for foxes, and in places where their odor would be objectionable they may be caught in box traps baited with meat and then drowned without being removed.

A trapped skunk, approached slowly and quietly, so as not to alarm it, may be killed, without its discharging scent, by a sharp blow across the back with a stick.

Skunk skins should always be freed from fat and cased flesh side out.

Spotted Skunks

Little spotted skunks, the skins of which in fur shops are called "civet cat," are decidedly smaller and more graceful than striped skunks. They are found in the Southern and Western States. Their habits and signs and the methods of catching them are similar to those relating to the large skunks. The size of steel traps suitable for spotted skunks is No. 1.

Minks

Minks are found throughout the greater part of the United States and Alaska. They do not occur in arid regions, as they are dependent on water and are usually found near streams. They feed on fish, frogs, crawfish, and other small animals and birds. Their tracks in snow or sand along streams indicate their presence. They are usually caught in No. 1 steel traps set in holes in the banks of small streams or in driftwood, a chicken or rabbit head, a fish, or some muskrat meat being placed in the hole beyond the trap. A bait inclosure may be built of sticks or stones where there is no natural cavity. Another plan is to set a trap about an inch under water on the top of a stake or piles of stones between the abutments of a bridge, or between large boulders or ledges, where it is necessary for minks to swim in following a stream; a fish or meat bait is suspended about ten inches above the trap.

Mink skins should be cased on long, narrow stretchers flesh side out.

Weasels

The large northern weasels, brown in summer and white in winter, are sold in the white dress as "ermine," a name originally applied to a similar animal of the Old World. Only those living in regions having considerable snow turn white in winter, and only the white skins have much value, although brown skins are usually salable at a small price. The animals roam widely on dry ground, feeding mainly on mice, ground squirrels, and other small mammals and on birds. Owing to a fierce desire to kill far beyond their needs they are sometimes very destructive to poultry; they leave their victims untouched except for a bite in the neck or beneath the wing, and fowls in this condition furnish a sure evidence of their presence. When running the weasel makes two tracks, one a little in advance of the other, its leaps covering twelve to sixteen inches of ground. It may be caught in No. 0 or No. 1 traps set under fences, buildings, or fallen trees, or wherever it is known to run. A mouse, English sparrow, or chicken head hung eight or ten inches above the trap may serve as bait.

Weasel skins should be cased the same as mink skins.

Otters

Otters are comparatively rare animals, but, being extensive travelers, are likely to appear now and then in any of the larger bodies of water, as fish are their natural food. They move about in the daytime and thus may be seen either fishing or at play. In the wilder regions they resort to steep banks of streams, down which they slide in play, plunging into the water below. For catching otters double spring No. 3 steel traps are used, set two or three inches under water at the foot of a slide or where the animals are likely to pass in their fishing.

Otter skins are cased flesh side out.

Wildcats

Wildcats, known also as bobcats, are found in timbered and mountainous regions, especially where there are cliffs and broken rock, in which they like to have their dens. They are active by day as well as by night, much the same as house cats. They feed on birds and small animals, and in some localities are destructive to poultry and lambs. Their tracks resemble those of house cats, except that they are much larger.

Wildcats are caught in No. 2 or No. 3 steel traps covered with grass, leaves, or dirt, according to surroundings, and baited with meat, as rabbit or muskrat, fastened about two feet above the trap or placed in a crevice behind it.

Wildcat skins should have the feet left on them. They are usually cased flesh side out, although some trappers open them and dry them flat.

Canadian Lynx

The lynx is confined mainly to Canada and Alaska, but occurs occasionally in the northern and more mountainous States. It lives almost exclusively in timbered regions and feeds mainly on rabbits, but grouse and other small creatures are frequently among its victims. Adapted for living in snowy regions, it has extraordinarily large feet, the tracks of which are easily distinguishable from those of wildcats.

The size of steel trap generally used for lynxes is No. 3 or No. 4. It may be set, well covered, before an inclosure baited with meat, or beneath a bait fastened to a tree three or four feet from the ground, the trap being set about two feet from the tree and having brush arranged on either side so as to cause a lynx to pass over it in approaching the bait.

Lynx skins are cased fur side out, special care being taken to preserve the feet.

Foxes

In the United States there are three types of foxes, the red, gray and kit foxes. Of the three, the red fox, including the color phases known as the cross and silver foxes, is the most difficult to catch and has the most valuable fur. While all these animals subsist mainly on rabbits, ground squirrels, mice, and insects, they are fond also of many kinds of fruit; their droppings usually contain hair and frequently seeds. Their tracks resemble those of a small dog, but are usually slightly narrower, farther apart, and more nearly in a straight line.

Red foxes are keen-scented, suspicious animals and have a wholesome fear of man, so that the trapper must take special care to outwit them. Traps and the ground where they are set must be free from human odors. Steel traps are cleaned by boiling them with twigs of spruce, fir, hemlock, birch, or sassafras, whichever may be at hand, or by burying them or leaving them in running water for a day or two. After being cleaned they are handled only with leather or waxed cotton gloves and are kept in a clean bag or basket until set.

Preparations for the trapping season go on continuously. The breeding dens, hunting ground, and peculiar habits of the animals are studied at every opportunity. Tracks in mud, dust, and snow, hair around burrows and on fences, and droppings along unused trails and lumber roads show where they range.

In well-watered regions traps are frequently set in springs which do not freeze over except in very cold weather. For making a water set, a pool not less than four feet wide is necessary. Several weeks before the trapping season opens a stone or turf is set in the pool, as a baiting place, about two feet from the edge and slightly above the surface of the water. Midway between it and the shore, mud from the bottom of the pool, in which the trap is to be embedded, is piled up nearly to the surface. By the time the trapping season opens everything about the spring has assumed a natural appearance. Then the trapper, walking in the bed of the stream, proceeds to complete his set. He uses as a bait part of a woodchuck, rabbit, muskrat,

skunk, cat, or fowl that has been kept out of the way of insects until it is badly tainted. He sets a No. 2 or No. 3 trap in the place prepared for it, and on the pan puts a piece of moss which sets well above the water and covers most of the space within the jaws of the trap. The trap chain is fastened to a stake driven into the bottom of the pool or to a drag, consisting of a stone or pole. The trapper must do all this without leaving any telltale odors on the ground.

In making a land set, the bed for the trap is made by digging a hole in the ground barely large enough to contain the trap, but deep enough for the stake and chain by which it is fastened to be concealed beneath it. The earth removed should be placed on a piece of cloth, and any of it that is not used in covering the trap should be carried away. In placing a trap in its bed care should be taken to have it rest firmly all around so as not to give way under pressure on any part but the pan. To keep dirt from falling beneath the pan and prevent the trap from springing, either a light wad of clean cotton should completely fill the space beneath the pan, or a sheet of thin paper should cover the trap. The trap is covered with dry earth, free from sticks and pebbles, the top layer being like the surrounding surface, making the location of the trap invisible. In winter, to keep them from freezing in, traps are bedded in chaff, dry leaves, or twigs or needles of pine, spruce, or hemlock trees.

Foxes often follow paths or trails, as may be ascertained by observing their tracks, and, taking advantage of this, trappers set traps where a passing fox in stepping over a log or stone will naturally place his foot. The carcass of a horse or other large animal placed near a trail attracts animals that way. They may also be lured by a scent made from trout, eels, or other oily fish left in glass jars a few weeks, or until the flesh has dissolved; the resulting liquid is then covered with a layer of fat which has a strong odor very attractive to carnivorous animals. This scent may be made more effective by the addition of beaver castor or the scent glands from muskrats.

These and similar scents are relied upon to lure foxes to what is known as the blind set, which is made in cleared ground away from trails and water. A field or pasture which foxes are known to traverse is selected and an ordinary land set made there as already described. After a trap has remained bedded for several days and every trace of it has been obliterated, the trapper smears the soles of his shoes with the scent, goes to the trap, and spreads some of the scent on stones, stumps, or grass near it, using a small new paint brush kept in the scent can for the purpose. In looking at traps, and this should be done every morning without fail, they are not to be approached any nearer than is necessary.

Gray and kit foxes are not especially wary. They are readily caught by the methods used in taking red foxes.

Fox skins should always be cased fur side out, the feet and tail being carefully skinned and pinned out to hasten drying.

Wolves

Timber wolves and prairie wolves, or coyotes, are restricted to the Western States. They are so often guilty of destroying domestic animals and deer that they are generally killed whenever possible, and bounties are offered for their scalps in several States. Their presence is made known by their tracks, their doleful howls, and their depredations.

The methods already described for trapping foxes are used for catching wolves. The trapper usually goes on horseback with his trapping outfit, as wolves are not suspicious of horse tracks. Arriving at the place selected for a trail or a blind set, he drops a piece of canvass on which to stand while making the set and is very careful not to step off it or leave anything carrying his odor. Blind sets are often made midway between growths of bushes, yucca, or cactus, eight or ten feet apart. A few days after the set has been made the trapper returns and

without dismounting from his horse drops some scent among the brush on either side of the trap. The scent may be the one described for catching foxes, or one more attractive to the animals may be prepared as follows:

Put into a bottle the urine from a wolf, the gall, and the anal glands, which are situated under the skin on either side of the vent and resemble small pieces of bluish fat; or, if these can not be readily found, the whole anal parts may be used. In preparing four ounces of the mixture use one-quarter the amount of glycerin to give it body and prevent too rapid evaporation, and one grain of corrosive sublimate to keep it from spoiling. Let the mixture stand several days, then shake well before using.

Government coyote trappers use with great success what may be called the Bakken prairie-dog set. In a prairie-dog "town" the trapper beds two steel traps about six inches apart in the edge of one of the hills and chains them to a stake driven at the mouth of the burrow. A dead prairie dog is placed between the traps and the burrow so as to look as if going into the burrow, and is wired by its head to the stake, the stake, head, and wire being covered with dirt. Beginning near the stake, two shallow trenches are dug, inclosing the prairie dog in an angle to direct a coyote approaching the bait over the traps. In making this set the trapper invariably works from the opposite side of the mound. No. 3 traps are used for coyotes and No. 4 traps for timber wolves.

Wolf skins should be cased hair side out.

Raccoons

Raccoons are found throughout the United States, mainly in the vicinity of ponds and streams. They feed on a great variety of things, including fruits, green corn, fish, frogs, birds, small animals, and occasionally poultry. They sleep during the day in holes, in trees or cliffs or supported by crocheted branches of trees, and seek their food at night. Their tracks, frequently seen on sandy shores, resemble in outline the shape of the human hand.

Raccoons are usually caught with No. 2 or No. 3 steel traps, which may be set at the entrance to holes in banks, logs, or decayed bases of trees, before a meat bait of some kind. They may also be caught in traps set slightly under water, close to the bank of a stream, by merely fastening to the pan a small mirror or a piece of bright tin, which rarely fails to excite their curiosity. In fastening traps it should be remembered that these animals climb and may lift the chain ring from a stake unless there is a nail or hook at the top to prevent it.

Raccoon skins should be open and shaped as nearly square as possible. The fur is rather thin as compared with that of many of the other fur bearers, and care should be taken not to make it thinner by overstretching the skin.

Opossums

Opossums are common in the Central, Southern, and Eastern States, as far north as Long Island, N. Y. They travel by night only, and feed on various kinds of fruits, small animals, insects, and carrion. They climb readily and den in hollow trees or logs and in crevices among rocks. Being unsuspicious they are likely to be found anywhere in woodlands, and are easily caught in No. 1 or No. 2 steel traps having meat baits behind or above them.

Pelts of opossums should always be cased flesh side out, the tail and feet being cut off.

Moles

Moles live entirely underground in burrows made by pressing aside with their large and very powerful forefeet the earth through which they pass. They can not force their way through earth that is dry and hard, and for this reason they are found only where there are frequent rains. When the ground is soft

with moisture and earthworms are driven up among the grass roots, moles, following them to the surface, throw up unsightly ridges and destroy plants by loosening or breaking their roots. The large Townsend mole of the northwest coast region throws up mounds of earth also which are very annoying in hay and grain fields and even in pasture land, where they cover no small amount of grass. Mole hills consist of pellets or balls of earth, and are readily distinguishable from pocket-gopher hills, which consist of loose earth without compact form. Furthermore, gophers do not make ridges as moles do.

There are a number of kinds of mole traps on the market. Those designed to spear the animals are not recommended when fur is an object, as they damage the pelt. The scissor and loop traps kill the animals without injuring their fur.

Before setting a mole trap it is well to ascertain where the animals are feeding. This may be done by stepping on the ridges here and there, and looking over the ground on the following day to see where they have been thrown up again. Select a straight portion of the runway, open a section of it wide enough to admit the trap, remove stones and other obstacles which might interfere with the operation of the trap, and replace enough of the dirt to cover the burrows. Then set the trap so the jaws or loops will be well below the burrow, and make sure that the trap will be sprung when the ridge is thrown up again.

Mole skins should be pinned out on boards and dried flat, flesh side up. After the pins have been driven the skin should be raised from the board to allow the fur to stand erect.

Muskrats

Muskrats live in ponds, streams, and marshes. Except in waterless areas, the greater part of California, and the coastal regions of several of the Southern States, these animals are found practically throughout North America from the northern limit of trees to Mexico. Although occasionally seen in the daytime, they are mainly nocturnal. They eat vegetable food chiefly, as the fruit, foliage, and roots of lilies and other water plants, but frequently vary this kind of diet with mussels and occasionally with fish.

The presence of muskrats is indicated in several ways. In marshes they build conspicuous houses of mud and weeds for winter occupancy. Those living in streams have holes in banks below the surface of the water. In summer they make paths of clear water through herbage and mud in shallow places, and leave their characteristic droppings on stones and driftwood. Piles of mussel shells and partly eaten roots are evidence that muskrats are living in the vicinity.

The size of steel trap usually set for muskrats is No. 1. As these animals are quite unsuspicious, traps may be set without bait in their paths or at the entrances to their burrows. Bait, consisting of carrots, parsnips, or sweet apples, may, however, be used to advantage, as muskrats are very fond of these foods. The bait may be placed on a bank, or suspended on a stick above the trap, which is generally a little below the surface of the water. Unless a captured muskrat can immediately get into deep water and drown, it is likely to twist its leg off above the trap and escape.

A box trap for catching muskrats in narrow streams, may be built of four boards, each eight inches wide and forty-two inches long. The ends of this trap are fitted with wire doors hanging by the upper edge. These doors remain closed by their own weight except when pushed open from the outside. A swimming muskrat can enter it easily but can not escape from it. This trap is held slightly under water by a weight of stones, a funnel of sticks or stones being constructed to guide muskrats into it.

A muskrat skin should have the tail and feet removed and be cased flesh side out.

Beavers

Beavers have been exterminated over a very large portion of the country. They are now well protected by law in most of the States in which they are still found, and their numbers and distribution are gradually increasing. Being very shy creatures and mainly nocturnal, they are rarely seen, but their dams and tree cuttings are unmistakable signs of their presence.

They feed mainly on herbage of various sorts and on the bark of such trees as cottonwood, poplar, maple, and birch, which for winter use they cut into pieces several feet long and carry to their ponds to be peeled under the ice during the winter. They build dams to control the depth of their ponds, construct houses, and dig burrows having entrances under water. When they cut their winter's supply of food at some distance from their pond, they drag it over well-worn paths to the water. The trapper frequently sets a No. 4 double-spring trap at the end of these paths where the water is four or five inches deep, or again at the entrance of a burrow. In any case he provides for drowning a captured beaver by slipping a smooth pole through the ring at the end of the trap chain and driving the small end of it firmly into the bottom where the water is deep, fastening the large end on the bank above with stakes or heavy stones. On being caught a beaver immediately dives, the ring of the trap chain slides down the pole, and the animal, held under water, soon drowns.

The tail and feet of the beaver are not left on the skin, which is stretched flat and as nearly round as possible. The common way of doing this is to sew or lace it to a hoop somewhat larger than the skin. The long podlike glands known as beaver castor, found just beneath the skin in front of the genital organs in both sexes, are in demand by trappers and raw-fur buyers. After they are removed from the skinned carcass the outlets are tied up to prevent leakage and they are hung up to dry in a cool place. They are used by manufacturers of perfumes and by trappers in making scent baits.

How To Prepare Skins

The manner of skinning a fur animal depends on whether its pelt is to be dried open or cased. For an open skin the first cut is made from the point of the chin straight to the tip of the tail, along the under side of the body. Side cuts are then made to this from the sole of each foot by the shortest routes. The only exceptions to this rule for taking off open or flat skins occur with beaver and mole skins, which do not have the feet and tail left on them and are cut only from chin to base of tail, no leg cuts being made. In peeling the skin from a carcass the knife should be used as little as possible and always with extreme care, as even a small gash in a skin reduces its value.

For a cased skin a cut is made from the sole of one hind foot to the sole of the other, on a line running along the rear edge of the hind legs and beneath the tail. The tail is cut along the under side its entire length and the bone is removed. If this is not done the hair of the tail is likely to come out when the skin is dressed. After the cuts have been made, the hind legs and feet are skinned out to the toes, the toes and the feet being cut on the under side. At this point it is convenient to hang the carcass by the hamstrings on hooks or pegs. After the tail bone has been taken out, the entire skin is turned from the body very much as a glove is turned from the hand. The fore feet are opened from the wrist to the toes and skinned out in the same manner as the hind feet. The ears are cut off beneath the skin close to the skull and the thick cartilage in them is removed. In order to avoid cutting the eyelids, the knife should be carefully applied close to the skull when the first trace of eyes appears as the skin is being turned from the head. Any fat or muscle adhering to a skin should be removed immediately, as fat causes skins to become brittle and worthless, while muscle invites decay when conditions are unfavorable for rapid

drying. This is usually done by drawing the skin flesh side out over strips of board or scantling, rounded on the upper side and by scraping it with the back of a knife, a dull file, or the edge of a square stick of hard wood, the scraping always being done from the head toward the tail.

After being scraped, or "fleshed," skins are stretched as uniformly throughout as possible. Open skins are usually pinned or nailed out on any convenient flat surface, flesh side exposed. If such a surface is not at hand, they are sewed or laced to a wooden hoop or frame of suitable size and shape. Cased skins are dried on stretchers made either of thin board or metal rods shaped so as to stretch them properly in every part.

Peltries should always be dried in a shady, well-ventilated place, as an open shed, and not by artificial heat when it can be avoided. In regions where the rainfall is excessive and the air is saturated with moisture, it is sometimes necessary to dry skins near a fire.

In packing furs for shipment care should be taken to arrange them so the fur side of one skin will not be soiled by the flesh side of another.

Skins wanted for home use may be dressed by simple though somewhat tedious methods, one of which is here outlined. A tanning liquor is made by adding to each gallon of water one quart of salt and half an ounce of sulphuric acid. This mixture should not be kept in a metal container. Thin skins are tanned by it in one day, but heavy skins must remain in it longer; they may remain in it indefinitely without harm. When removed from this liquor they are washed several times in soapy water, wrung as dry as possible, and rubbed on the flesh side with a cake of hard soap. Flat skins are then folded in the middle, lengthwise over a clothes line, hair side out, and left to dry. Cased skins are simply hung up by the nose, hair side out. When the hair is barely dry, and the flesh side is still moist, they are laid over a smooth, rounded board and scraped on the flesh side with the edge of a worn flat file or a similar blunt-edged tool. In this way an inner layer is removed, and the skins become nearly white in color. They are then stretched, rubbed and twisted until quite dry. Fresh butter or other animal fat worked into skins while they are warm and then worked out again next day in dry hardwood sawdust or extracted by a hasty bath in gasoline increases their softness.

The main part of dressing skins consists of the labor applied while they are drying, in order to make them soft and pliable. In skin-dressing establishments this operation is done by machinery for a period of eight hours or more, hundreds of skins being treated at the same time. Home dressed skins are softened by hand, one at a time. Skins of the same kinds of animals do not always work alike. In some cases it is necessary to return one to the tanning solution once or even twice before it will finally become soft. Unless one has considerable spare time it is more satisfactory to send skins to a fur dresser than to dress them at home.

A skin on which the fur is soiled should be cleaned before being stretched. Grease may be removed by a gasoline bath or by hot corn meal or hardwood sawdust rubbed in and shaken out repeatedly and finally beaten out with a limber switch. Light-colored furs are stained by blood if it is allowed to remain on them for any length of time. By exercising care the trapper can usually prevent fur from becoming bloody, but when this is impossible the blood should be removed immediately by washing with clear water as long as the water shows a tinge of red. Wet fur should always be dried before the skin is stretched, which can be done by shaking and wiping and applying corn meal or sawdust.

Fur that has been made up into wearing apparel may be freshened by laying it flat on a table and rubbing into it, thoroughly, flake naphthalene. The naphthalene has only to be shaken out when the cleaning is done. Garments that are badly

soiled should have the lining removed and be separated into their main parts. These may be washed separately in warm water, with any kind of soap that is suitable for washing woollens, rinsed until clean, and then dried in sunshine where there is a breeze to carry away moisture and keep the fur in motion. When almost dry the parts should be worked in the hands and beaten, after which they are ready to be reassembled in the garment.

Furs are frequently injured by certain insects. Raw skins, especially those more or less greasy, are very attractive to larder beetles and some of their relatives, both in the larval or immature form and in the adult stage. Fur, as distinguished from the skin on which it grows, is eaten by larvae of the clothes moth. Trouble from both of these pests may be avoided by keeping furs during warm weather in tight tin or sheet-iron cases, and placing in an open dish one ounce of carbon bisulphide to each six cubic feet of space when the case is finally closed. The gas arising from this liquid when mixed with air makes a violent explosive, for which reason it should never be used in the presence of fire. Dressed furs may be protected from moths by brushing and combing them thoroughly out of doors in bright weather and immediately tying them up in a sack of heavy paper or of closely woven cotton cloth. Raw furs should be either dressed or disposed of before the advent of summer, if possible, to prevent them from being injured by insects or the action of fat.

CORRESPONDENCE

American Fox and Fur Farmer
406 Arcade Building
Utica, N. Y.

Dear Sirs:—

We have received through your courtesy Vol. I, No. 1, July, 1921, of the American Fox and Fur Farmer. This journal is of interest in connection with the work of the Department and we should be glad to receive it regularly. We are therefore writing to enquire whether you maintain a list to which it is sent as an exchange and if so, whether you would be willing to place the address of this Library on the list. If you can make such an arrangement the favor will be appreciated.

Very truly yours,
C. R. BARNETT,
Librarian.

Elizabethville, Pa., August 8, 1921.
American Fox and Fur Farmer
Utica, New York
Gentlemen:—

Was more than pleased when I saw your magazine of last month. Enclosed find \$3.00 for one years subscription. I shall await the receipt of the next copy with great interest.

Very truly yours,
SILVER BLACK FOX COMPANY, Inc.
Per H. L. Romberger, Manager.

Milltown, Maine, Aug. 29, 1921.
American Fox and Fur Farmer
Utica, New York
Gentlemen:—

I have just received a copy of your magazine and I congratulate you on getting out such a fine magazine in such a

short space of time. I am sure all fox ranchers will appreciate it, especially the new ones just starting, and believe me I think there will be lots of them.

Yours very truly,
R. L. TODD.

South Ryegate, Vt., September 1, 1921.
American Fox and Fur Farmer
Utica, New York
Gentlemen:—

The August issue was a good one, and I was well pleased with the way you handled our advertisement.

Sincerely yours,
GEORGE S. TUTTLE.

Fairfax, Minn., August 9, 1921.
American Fox and Fur Farmer
Utica, New York
Gentlemen:—

You surely have a nice publication for a starter.
Yours very truly,

J. A. LOFFELMACHER.

Muskegon, Mich., August 5, 1921.
American Fox and Fur Farmer
Utica, New York
Gentlemen:—

We wish you much success in your endeavors to publish a magazine for the fox and fur farmers of the United States, and remain

Very truly yours,
WOLVERINE SILVER BLACK FOX COMPANY.
By E. F. Alberts

The Central New York Fur Company of Boonville, N. Y., are sending out to farmers in Northern New York a beautifully illustrated booklet on fox ranching and fur farming in general. This is a fine piece of the printer's and engraver's art. It contains some beautiful half-tone cuts of this Company's beautiful ranch at Boonville and of some of their fine foxes.

John Callahan, Superintendent of The Mohegan Silver Black Fox Co. of Raquette Lake, N. Y., was a welcome caller at the office of the "American Fox and Fur Farmer" recently. Mr. Callahan is an enthusiast in the fox industry and has had some wonderful results in raising pups.

AN EXPERT BREEDER'S OPINION

The crossing of Karakules on native American sheep for furs, and possibly new breeds of sheep, is a perfectly sane undertaking. It is the belief of scientific investigators of breeding that most, if not all, of our valuable domesticated animals have been developed in this way; that is, through the crossing of different breeds and the subsequent selection of the best qualities thus brought together. It has been necessary to have pioneers in this work—men who were willing to undertake the unusual—or we should not now have our wonderful and extremely valuable breeds of horses, cattle, sheep, hogs, etc.

Mr. Crawford is one of these pioneers, and is to be congratulated on securing definite results at an early stage of his experiment, with the reasonable expectation of far greater results in the future. He has before him the prospect of a large service to the science of heredity and the development of an industry of unusual worth to mankind.—Dr. R. K. NABOURS, Professor of Zoology in the Kansas Agricultural College.

GETTING RID OF WORMS

By C. L. DURGAN

President North Woods Silver Fox Farm Co., Inc.

Wilmington, New York

It seems that a great many fox ranchers are troubled a great deal in keeping their foxes free from worms. This is very simple if the proper feed is given and the pens are kept in a sanitary condition. We, at our ranch, have not had the slightest indication of worms this season and a great deal of the credit for this condition is due to the proper use of salt, which I believe a great many ranchers neglect to use. In my opinion all milk, before it is fed, should be salted slightly, the proportion we use being about one level tablespoonful to five quarts of milk. We also salt all ground meat, about to suit the taste, and feed from the time the pups are about six weeks old. Of course, only small portions are given at that age. We find that salt meat is very good to feed once in a while, but should be well freshened out. Caution should be taken not to feed too much salt, as it would be worse than none at all. We have one female fox that raised seven fine pups last year, and this season she has six fine pups. We feel that this speaks well for our method of feeding and sanitation.

HOW TO HAVE MORE AND BETTER FUR

Reports recently received by the Biological Survey from a large number of raw-fur buyers generally agree that the supply of wild fur has decreased greatly since 1910. In many of these reports the shrinkage is estimated at from 25 to 50 per cent. in ten years. A review of the great fur sales recently held in this country shows that the stock disposed of was brought from all parts of the world to supply the American trade. Manufactured furs in 1919 cost approximately 200 per cent. more than the same grade of furs bought two years before, and skins of animals formerly regarded as having little or no fur value were made up into garments selling at from \$100 to \$150 each. All this goes to show that the demand for fur is far greater than can be met. Evidently the time is at hand when steps should be taken to increase and improve the fur supply. Trappers, dealers, manufacturers, and wearers, possessing in the aggregate a tremendous moral and financial influence, want more and better fur.

Among the bad practices which have reduced the number of fur bearers are: (1) Using poison, which kills many animals that are not found before their skins are spoiled; (2) smoking animals out of their dens, which often suffocates them instead of forcing them out; (3) destroying dens, which either leaves the animals without suitable places in which to rear their young or drives them out of the neighborhood altogether; (4) trapping early in fall, which catches animals having small, unprime pelts before they are old enough to be suspicious of traps; and (5) trapping late in spring, which destroys breeding females with young.

If no early or late trapping were done there would be fewer animals taken, but on the other hand the value of the catch and the number of animals left to breed another season would be far greater. Skins are prime for about two months after the molt is completed, and during this time they have no dark spots on the flesh side. They are worth much more when prime than when unprime. Muskrat and beaver pelts are best in February and March, while those of other fur bearers are best from late in November till about the end of January.

The wild as well as the domestic animals of a farm require food and shelter, and while the farmer is providing as a matter

of course for his domestic stock, he will, if wise, be mindful also of the needs of his wild tenants. If he regards his barns as factories for producing milk, meat and wool, he may as well consider the fox den in the hill pasture and the big hollow sycamore by the creek as fur factories and preserve them accordingly. If he sells only his excess domestic stock, he also will cease trapping the wild "stock" while there are enough fur bearers left on his land to insure another year's fur harvest.

It is as logical to try to make farms produce more fur as to make them produce more beef. The important point is to have people understand the possibilities of increasing their income in this way. When this point is fully appreciated they will uphold State laws which forbid the use of smoke, poison, or other chemicals in taking fur animals, and forbid the destruction of dens and trapping on land of another without written permission. Such laws are already in force in several States, and will undoubtedly be operative in all the fur-producing States in the near future.

The measures thus far considered for increasing and improving the fur output have all been along the line of conservation. Beyond conservation, and surpassing it, are sound constructive measures by which a great and permanent improvement in wild fur may be accomplished. So thoroughly has the animal life of North America been investigated that we know in what region to find the best foxes, the best skunks, the best raccoons, the best muskrats, and the best of every other kind of fur bearer. Nearly all these animals have been bred in confinement, and although only two or three have actually been farmed, there is no reasonable doubt that under favorable conditions all can be propagated on fur farms for distribution on preserves in State and National forests or other public domain, and on private lands set aside by agreement with the owners, where they will be fully protected and from which they will spread when the natural limit to their abundance has been reached.

Just as State game farms raise and distribute game for sportsmen to shoot and State and Federal hatcheries raise and distribute fish for anglers to hook, so should there be State and Federal fur farms for raising the largest and best-furred animals to be found on the continent for stocking preserves for the benefit of trappers. Possibly here and there a hunter or poultryman may be inclined to oppose this suggestion, but the hunter may be reassured by the fact that game and fur animals are naturally coexistent and that until steel traps and firearms appeared there was an abundance of both. As to the poultryman's losses due to fur animals they are, in the main, preventable; the price of one fox pelt is sufficient to pay for a good-sized vermin-proof chicken run.

It should not be forgotten that the natural and ordinary food of fur animals consists mainly of materials for which mankind has little or no use, and that certain of these animals render the farmer a positive service by ridding his orchards, fields, and pastures of some of the worst pests infesting them. Generally speaking, therefore, the project to increase and improve fur animals would result in turning useless or harmful organisms into valuable peltries. It would also enable the farmer, when the regular duties of his farm are at their lowest ebb, to reap a self-raised harvest of fur which has cost him nothing and which probably has been developed in his service.

If you believe in an American publication for the American fox and fur farmer show your belief by sending in your subscription and your advertising contract.

Co-operate with this publication by sending in your subscription now.

RABBITS

By RALPH M. WILLIAMS

Feeding

Feeding is one of the most important things in taking care of rabbits. Do not feed at irregular hours. I feed three times a day in summer, two times in fall and spring and once in winter. That is, from April fifteenth to November twelfth I feed three times a day. From November twelfth to December fifteenth I feed two times a day. From December fifteenth to February twentieth I feed once a day. When I feed once a day I feed at noon. When I feed twice I feed at 8:30 A. M. and 5:30 P. M. When I feed three times a day I feed at 7:30 A. M., 1:15 and 6:00 P. M. At least as near that time as I can. I feed one cup of oats, five handfuls of greens and one cup of water per rabbit. In breeding season it is well to give the mothers milk to drink.

Housing

Housing is a very simple matter. I make my pens out of a box. Each rabbit should have at least 20-25 cubic feet of space. The rabbits should have opportunity to run on the ground especially in spring, summer and fall. It is not advisable to use shavings or straw for bedding. Timothy hay is best if possible.

Care of Hutches

The care of hutches is a very simple matter. I use a pen cleaner. These will clean and scrape pens. I use mine every two days. My pens do not stink like some do. This also gives the rabbit more comfort. Do not let your pens stink, do you?

Breeds

There are a great many varieties of rabbits. A few of the breeds are as follows: Of the Hares there is the Belgium, New Zealand, Mastodian Giants, Black checkerel Giants; of the Flemish there are Black, White, Gray and Steel Gray; of the Dutch there are Black, White and both mixed; there is also the English Spot.

Diseases

Canker is a disease of the ear. Sulphur has been found to be a good remedy. Dust the sulphur in the ear removing as much of loose scab as possible with a pair of tweezers. Repeat this operation every day as long as necessary. Do not get discouraged if it is not gone in three or five days. It is caused by improper feeding. Too much green food or rich stuffs or meals too near each other are causes.

Another disease is snuffles or a cold in the head. There are quite a lot of diseases a few of which are as follows: Canker, Snuffles, Slobbers, Vent Disease, Sore Eyes, Diarrhoea, Sore Hocks.

Louis Bucket of Alexandria, Minn., who has not good success raising red fox, finds it almost impossible to keep visitors away from his fox pens during the rearing season. Ranchers should hang warning posters at the entrance to their grounds at this period and the public should give them due recognition. Parent foxes are extremely nervous in the presence of strangers and will usually haul their pups out of their nest box and carry them around the pen, looking vainly for a den which will be hidden from prying eyes. During inclement weather the pups become chilled and invariably die. Fox farmers may take advantage of a new law, passed at the last session of the legislature, which makes it a misdemeanor to trespass within twenty-five yards of a posted fox pen.



NEAT GRAY BROADTAIL COAT WITH
BLUE FOX COLLAR

Shown at the St. Louis Style Show

Courtesy of "Fur Trade Review," New York City

HINTS ON THE CARE OF MINKS

Food

Wild mink follow water courses and feed on frogs, fish, mice, birds, crawfish, and other small creatures. In captivity they learn readily to eat a variety of cereals, as well-cooked graham mush and wheat or corn bread, mixed with chopped or ground meat and milk or meat broth. Their principal diet, however, should always be meat or fish. Fresh chicken, rabbit, and fish heads, English sparrows, and carcasses of trapped woodchucks, muskrats, and skunks make excellent mink feed. When minks are fed largely on milk they should be watched to see



MR. FRANK F. TUPLIN
Muskegon, Mich.

One of the live wires in the fox industry

that it does not cause diarrhoea. Adults require about four ounces of clean meat, or the equivalent, daily. A strict diet of perfectly fresh beef is an excellent remedy for intestinal troubles. Cooked food is best when served warm, especially in winter. Feed twice a day, not more than is eaten up clean within a few minutes. Do not allow food to be stored in nests. Keep pans clean and provide fresh water regularly.

Pens

Pens should have an area of about 32 square feet. They may be of heavy 1-inch-mesh poultry netting, galvanized sheet iron, or smooth boards set on end. If netting is used, it should cover top, bottom and sides. Board or iron walls should extend two feet into the ground and be turned inward a foot at the bottom. Their height depends on the snowfall. Minks can not jump straight upward more than four feet. Each animal should have a separate pen.

Dens

The den consists of an inner box 10 or 12 inches square inclosed by an outer box about 24 inches square, the space be-

tween them being packed with dry leaves or straw. The inner box is entered near the top through a 4-inch spout, 2 feet long, slanting downward through the outer wall to within an inch of the ground. The outer end of the spout has a door which may be closed from outside the pen. Dens exposed to the weather are built to keep out wind and rain. Both boxes have covers. Dens should always be shaded and kept dry and dark. Fine straw or hay should be provided for the nests.

Breeding

Minks may be kept in pairs or in the proportion of one male to four or five females. The mating season is in February or March. The young are born in April or May. Males should be admitted to females about one day; or when kept in pairs they may be allowed to run with females until the end of the rutting period. Females should always be kept separate while with young.

Co-operate with this publication by sending in your subscription now.

News Notes of the American Fox Breeders Association

Next month, October 1921, will come the Annual Meeting of the American Fox Breeders Association. This Association was incorporated under the laws of the Commonwealth of Massachusetts in 1918.

What the Association has accomplished since its organization, what it is actively engaged in doing at present and what it is planning to do in the future, is proved conclusively, by practically all of the American Fox Breeders Association's rules, standards, registrations and advanced registration, etc. and etc., being adopted by other associations, either word for word or in substance. This is of course only a natural consequence, for, the "Pioneers" in the live fox industry in the United States, were all men of many years experience and most eminently fitted to perform the work. It was indeed at the cost of great labor, time and expense which enabled these gentlemen to formulate such a standard, such rules and forms that it could not be otherwise than when other efforts were made to form organized gatherings to promote the sale of live foxes, form fox companies, clubs, etc., that these same standards and rules as formulated by the American Fox Breeders Association, were followed closely and used. It remains the fact then, that your Association, starting as it did from the cleanest and most intelligent motives, is to-day, the same powerful force in the live fox industry as at the time of its inception.

Its members are all of the finest type of men and no knowledge of any of its members ever having been mixed in any fox deals of unsavory flavor, has ever reached the headquarters of this Association.

Your Association, as you all well know, will, in the future as it has in the past, guard well, all of your prerogatives to which you are fully entitled and which rightfully belong to you; co-operating with its members and incorporating into its body politic, all matters essential to your welfare and the advancement of the live fox industry. That the live fox industry is about to advance still further, can be readily seen by the interest the United States government and the Canadian government are showing in the industry. When the Department of Agriculture at Washington, D. C., assigns such a valuable man as Lieut. Frank G. Ashbrook, with his years of experience and his all round capability, to make a survey of the Fox Ranches in the United States and Canada, you may rest assured that it means business, and of the right sort. The American Fox Breeders Association as an Association and all of its members, appreciate what our Government is doing for the industry.

Universal Standard

The joint meeting of the committees representing the associations of the United States and Canada, which was to be held in Montreal September 2nd, has been postponed until September 12th to allow of examining the pelts offered at the Fur Sales to be held in Montreal starting on that date. The members of the committee to represent the American Fox Breeders Association, at Montreal and who are to help make and form a Universal Standard, to be accepted and used as authority, in all countries, is composed of Dr. S. F. Wadsworth, R. T. Moore, Ned Dearborn, J. S. Sterling and George Brackett. This committee is prepared to present not only the ideas of which this Association was the originator, but also of several new and very pertinent ideas, which cannot but help to make

this Universal Standard a work of great worth to all. When the new Standard is adopted, the wise rancher and owner of foxes will immediately have his foxes scored under it, as it will be much different than the scorings given at the past Shows. It will prove the worth of a fox from pelt value also, and show at a glance just where a fox excels or needs improvement in breeding. It will show wherein the fox is nearest 100 per cent. and where it is far from it, in color, fur, brush and all the essential points. This is as much importance as its registration. We venture to say, that within one year from the date of the adopting of a Universal Standard, any live fox offered for sale that will bring the average market price, must have go with it, the actual scoring of the fox as well as its registration paper.

Registration

There has been much said about registration and registering live foxes in the American Fox Breeders Association, but even so, it still remains an assured fact, that any fox which is registered with the Association, has its market value for breeding purposes, greatly added to. There will be more pups registered this year than ever before. Already the call is for blanks in lots of 50-30-25, etc. The cost of registration is still the same; Registration \$2.00, Advanced Registration \$5.00.

Visitors

We have had several pleasing calls from different ranchers and others interested in the raising of foxes. Several gentlemen from Prince Edward Island and from the western states, have made it a point to drop in and talk fox. Every one admits there is still a lot to learn; new situations are continually arising and new experiments being carried out. One, where a litter of Patch foxes received principally a fish diet at all meals, for one entire season, worked out well, the animals coming through was a splendid coat of fur. Another innovation mentioned was: Roofed sheds, fifteen by thirty feet, divided into six compartments. The front of shed was wired, and each compartment had an outside run (shaded by trees) three by three by eight feet. These are termed "fattening" or fur pens, the foxes being kept in the shade continually and are unable to dig into the ground. "It sure do beat all" how the time flies when the fox fanciers get to "fanning," and most always some one has something new to offer.

Membership

Every member should realize that this Association is the first and last word in as regards the live fox industry. It is the originator of all things that have brought the live fox industry to the point it has now reached in the United States. It is and will continue to function in the watching out for the interests of its members and the industry as a whole. Members of this Association whose ranches and homes are at a long distance from the headquarters of the Association, will, in time be enabled to establish branches, wherein much of local importance and interest may be taken care of.

Two years ago at a meeting of the Board of Governors of the Association, it was planned to allow branches of the A. F. B. A. to be established in the different States and sections of the country, where the live fox industry had progressed to the extent which would warrant.

This measure as propounded by the Governors, of having the headquarters located in Boston, Mass., where the A. F.

B. A. was incorporated; with the opportunity for branches, or Fox Associations, to become affiliated with the Parent Association, was brought out after much deliberation and study of the matter. The Governors had, for precedents, in following up the matter at hand, the facts in the case; of so many of other live stock associations with memberships numbering into the thousands, with headquarters in places ranging from New York City to Brattleboro, Vt., and so it proved out.

And so it goes, no one for an instant thinks or believes that a majority *nor anywhere near a majority of the members* of those associations keep their animals in or near the aforesaid places. The efforts of this Association to conserve and concentrate the live fox industry throughout the United States, is clearly shown by the appointment of a prominent fox rancher (a member of this Association) on important committees wherein changes in such matters as Standards and Tariff were to be altered. In fact, the aforesaid rancher was appointed by the American Fox Breeders Association, as the Chairman of the Tariff Committee. This was done because the rancher was affiliated with organizations identified with the raising and selling of live foxes and could clearly express the sentiment of that section of the United States in which he was interested and where at present time there are a considerable number of live foxes being handled. This method of having the Executive Board represented by men from different states, is shown by the members elected at its Annual Meetings. Application blanks for membership are always on hand at this office. Membership in the American Fox Breeders Association costs \$10.00 a year in advance.

Communications

The National Fox Breeders Association of America, an organization which according to an open letter printed in the Black Fox Magazine, has been in existence a little over a year, has voted among themselves at their August meeting, to have their Secretary write to the parent association as we deem ourselves with the idea of affiliating with us. This letter stating the facts has reached this office and has been referred to the Executive Board. Members of the American Fox Breeders Association will probably be called to act on this matter at the next annual meeting.

Annual Meeting

Don't forget the Annual Meeting comes in October. Notice of the date of this meeting will be mailed to your address as of record at this office.

ITEMS

A report in the New York Daily News Record speaks of Mrs. Harding having been seen wearing a white fox neckpiece and of an expected demand for fox pelts from manufacturers.

It is reported considerable indignation is manifested at Montreal in the local fur trade over reports circulated by a news agency quoting prices bid at Winnipeg fur auction as showing big reductions. It is pointed out by experts that the correspondent compared unlike groupings, in making his comparisons with the last sale. Fur men here point out Silver fox which brought only \$90 to \$250 "were not of highest quality," said one dealer, adding, "Bring me really fine Silver fox and I will get you \$750 for it."

London, Aug. 19.—One of the leading brokers has said: "The present market was almost too good." The larger and older established fur brokers in London appear to be doing very little business at the present time. Most of the activity, much of which is on speculative lines, may be traced to the smaller firms which entered the fur trade during and since the war. Many complaints are to be heard from the older brokers as to the activities of this section of the trade.

Reported from St. Louis—Officials of the International Fur Exchange announce that the first public auction of furs since the reorganization of the exchange will be held beginning September 28th. Display of furs will begin on the morning of September 22nd. The last sale conducted by the International Fur Exchange was held last February, after which the old organization collapsed.

Know Nothing of Ban on Fox Trapping in Alaska—It lately has been reported in the local market that the trapping of white foxes in Alaska has been forbidden by governmental order. Inquiry in Washington develops that neither of the three government departments having jurisdiction over Alaskan affairs, has any information concerning such an order. The suggestion is made that a ban on white fox trapping, if issued, may have been ordered by the Governor of Alaska.

The fourth fur auction sale recently held at Winnipeg, Manitoba, was featured by a considerable drop in prices. Spring muskrat and beaver skins felt the fluctuations considerably, while otter, silver fox and marten sold strongly. The Montreal fur sale starts September 12th. Goods will be on display at the Company's warehouse and catalogue issued September 8th. There is an offering of 130 Silver Fox pelts as against 404 offered last May sale.

The New York Fur Auction Sales Company start their sale September 19th with an offering of 169 Silver Fox Pelts on exhibit at their warehouse 550-52 West 36th Street. Catalogues to be issued on and after September 14th.

QUESTIONS AND ANSWERS

This Department is open to our readers for the asking and answering of any questions connected directly or indirectly with fox and fur farming. It is not the intention of the Editor to answer these questions from the office of the publication, but rather to allow our readers to answer them from their wide and practical experience in the industry. Answers sent in care of the publication will be promptly forwarded to the one making inquiry.

- Q. 1. What is the life of a fox?
2. Where does he go to die?

A Reader, Ohio.

A. 1. The fox lives to be about ten or twelve years of age. Some are killed young; some, like certain notorious chicken thieves of the woodlot ranges, grow old in iniquity, and perhaps they attain an age of twelve to sixteen years.

2. Most foxes die of traps, shooting, or the jeopardies of a life of cunning rascality. Poison kills many foxes, and these lie down in the snow, where they do not appear again until spring, and the thaw reveals their wasted carcass and shredly bones. The old fox, half-blind and no longer a good hunter, his teeth blunted, starves slowly. He knows his weakness and draws further and further from human and other enemies. He skulks in thickets. He crawls into brush heaps. He makes his painful way, growing weaker and weaker till at last he hunts a hole, perhaps in a rock ledge, perhaps underground, under a mound of brush. There he curls up, goes to sleep and fades out, leaving a feast for beetles and grubs.

Arthur Schleicher, Secretary and Manager of the Rest Island Silver Fox Company, Lake City, Minn., reports that they have over four hundred fox puppies on their two ranches. This is the largest fox fur farm in the United States and is excelled in size only by one Canadian company. Mr. Schleicher informs us that his success this year exceeded his fondest expectations. The Rest Island Company has already placed orders for wire for one hundred more pens. Their stock ranks with the best and every animal is registered in the National Silver Fox Breeders' Association. Mr. Schleicher takes keen delight in all wild animals and has for display purposes wild deer, raccoon, owls, etc. Thousands of visitors register at the ranch from July to January.



EXQUISITE MINK WRAP, CRUSH COLLAR, LINED
WITH BROCADED SILK

Shown by Kolb & Teich at the Chicago Pageant of Progress
Style Show

Courtesy of "Fur Trade Review," New York City

COMMENTS BY THE PUBLIC PRESS

Saturday Evening Post: From \$2 a pelt the common red fox has jumped to \$12 to \$15. The cross fox to as high as \$100, and silver and black to prices that make a silver skin make a small fortune. In the London market ordinary pelts bring from \$500 to \$1,000 and from that up to \$4,000. This latter figure is the highest legitimate price ever brought by a black fox skin, though it is known that an English lady of title purchased a skin for \$3,500 and turned it over to an Austrian nobleman's wife for \$7,000.

Boston Journal: From the time you arrive on Prince Edward Island your estimate of the fox business undergoes a change, due to the scarcity of good breeding stock. The pedigreed fox brings a price which might be thought to be exorbitant. You are naturally skeptical when you read that companies formed for the breeding of foxes have declared dividends of 200 per cent., another 300 per cent., another 400 per cent. and still another 900 per cent.

Boston American: There is a little animal, the silver black fox, which is almost the most valuable thing in the world, for its weight. A single skin weighing only a few ounces, has sold for as much as \$2,700. The farmers of Prince Edward Island discovered they could raise these little fur nuggets in captivity. To-day furriers, fishermen and small store keepers, unskilled in business and finance, are building ten thousand dollar homes, buying costly automobiles and speed boats. It does not sound real, but it is true.

The Farmers Wife, Nov., 1920: It is here, at Muskegon, we find Mrs. Gordon running the ranch that she and her husband and two partners established in 1915, Mr. Gordon having died two years ago, she took the whole responsibility. Has she made good? Yes, she has made good: she began with three pairs of breeding foxes four seasons ago and has raised 243. She has now 27 pairs of breeding stock left, valued at \$177,999, and for the foxes she sold she has \$165,000.

She says:—

"This is a permanent, practical business which is bound to grow steadily for all time to come," declared the owner emphatically. "There is no guess work about the demand for fur and everyone knows the supply is growing scarcer each year. From now on there are going to be many more fur ranches and farmers are going to keep fur bearing animals just as they now keep other live stock. There is nothing intricate about this business; there are no secrets but such as anyone can learn. That is one of the reasons why we are going to continue to grow; our business is done in the open and our ranches can be inspected at any time. I show hundreds of people through this ranch each season, and they come from all parts of the country. I tell them all about the business, just the same as I am telling you."

Silver Fox Farms in Japan From Canadian Stock

Scientific American, August 28, 1920: One of the strangest and most interesting wild animal shipments left Vancouver, Canada, on the steamship "Empress of Asia" the last week in February. The shipment consisted of six silver foxes from one of the largest fox farms in Prince Edward Island, eastern Canada, and was bound for Japan, where a syndicate is about to undertake fur farming. The foxes were valued at \$5,000 per head, and were from a long line of domesticated stock, carrying a pedigree as notable as any famous horse or dog.

The Philadelphia Inquirer, May 4, 1921: Washington, May 3.—Fox fur has come into such demand in this country that Agricultural Department officials have put up immigration bars against the flow of undesirable live foxes imported for breeding purposes. By regulations just issued, foxes are classed with other live-stock for quarantine against disease and can enter the country only after inspection and on permit, except when consigned to zoological gardens.

"Attractive prices" offered for fox fur had interested many people, the announcement said, and numerous fox farms had sprung up in Northern States which the department desired to encourage in development of the industry.

Saturday Evening Post, Oct. 30, 1920: Fox farming or ranching when properly conducted is profitable. The silver or silver-gray fox was the first American animal of the fur-bearing

species to be domesticated. The first profitable fox ranch was built and stocked in 1894. In 1910 pelts from ranches commanded a price as high as \$1,386 for the average; the top price was \$2,624. Fox farming about this time was taken up by many as a get-rich-quick scheme and many stock companies were organized for the purpose of financing farms. In 1913 ranch-bred cubs, six months old, sold for \$11,000 to \$15,000 a pair. The war interrupted these speculative operations. Fox ranches are established in most Canadian provinces, in Alaska, and in the American states of New Hampshire, Maine, Vermont, Massachusetts, New York, Pennsylvania, Ohio, Wisconsin, Michigan, Minnesota, Missouri, Oregon and Washington.

Fox furs are among the most popular with women to-day. A natural black is the rarest specimen of fox, but few people, not excepting the trappers of the far North, have ever seen a natural black. When a live specimen is captured it is usually sold to a fox breeder for many thousands of dollars. Were it not for the occasional appearance in Nature of the natural black fox we should not be able to possess that most beautiful fox skin known as the silver black. This latter fur is the result of careful scientific breeding on the fur ranches on Prince Edward Island. When an ordinary red fox is mated to a black and the resulting pups are bred to a black for four or five generations, a good silver-black fox will result. The first generation will be termed a cross fox; the pelt will show some red, a sprinkling of silver hairs and a black cross over the shoulders. As the breed improves there will be more black, a greater amount of the characteristic silver hairs, and the red will disappear from the color scheme of the pelt.

In judging fox furs the texture, quality, gloss and evenness of the guard hairs must be considered. In good-quality fox skins the guard hairs so completely cover the underfur and are so thick and even that there are no marked separations when the fur is draped over the shoulders. According to one noted expert the test for the perfect silver-black fox fur is as follows: The soft downy under-fur, which is quite three and a half inches in length. The guard fur is black, of a raven-blue hue, and on the neck and shoulders and over the rump it is sprinkled with silver white, which gives the individual name to the fur. It is impossible to imitate this white flecking, for Nature puts it on the individual black hair about a quarter of an inch below the glossy black tip. An examination through a magnifying glass will show the white spot to be a trifle thicker than the rest of the hair. These rare silver-black fox skins have recently sold for as much as \$2,560 for a pair.

From the Country Gentleman, Sept. 25, 1920: Are furs going up? Well, I have a friend who has shed his fur-lined overcoat three times in an effort to avoid sporting a garment that he could not afford. The coat was lined with mink in 1913 when he bought it at a cost of \$500. He wore it two years, then sold the mink lining for \$1,000 and replaced it with nutria at the cost of \$150. Two years later, in 1917, he had the nutria removed and sold it for \$250. He then chose the fur of the humble muskrat as a lining and had it put in the shell for fifty-five dollars, but in 1919 muskrat became so valuable that he sold the inside of his overcoat for \$300. He still has the shell without the lining. In the case of foxes the margin of profit is so great that it is unnecessary to consider the cost of food. That is the enthusiastic way Dr. Ned Dearborn, formerly in charge of the fur-farming activities of the United States Biological Survey, expresses himself when he begins to talk about fur prices and the diminishing supplies of fur-bearing animals. "It is high time," says the doctor, "that farmers began to take a practical attitude toward the conservation of furs and the propagation of them on their farms."

So thoroughly has Doctor Dearborn been "sold" on the business that he recently left the Bureau of Biological Survey

and has gone into fur-farming himself. On this livestock farm he is going to raise silver foxes, starting in this fall with twenty pairs of the best stock he can find, purchasing them in the United States and Canada—probably Prince Edward Island.

Doctor Dearborn has been giving special attention to silver-fox farming for a number of years and now believes that the sale price of the skins is sufficiently near the cost of breeding stock so that there is comparatively little hazard in the business compared with what it was a few years ago when a pair of silver foxes sold for \$30,000 or more. During the time in which he has been studying the business it has developed from the stage of frenzied finance, when almost fabulous sums were paid.

News Notes

Raccoon from the Northern Raccoon Fur Farm owned by J. A. Loffelmacher of Fairfax, Minn., have been shipped to all parts of the United States, Alaska and Canada during the past twelve years. Mr. Loffelmacher has fenced in a large tract of woods the interior of which is composed of large wired yards. After the breeding season is over his animals are segregated, the females being placed in separate pens where they give birth to their young. He advises closing the ranch to visitors during this period as the females will kill their off-spring dragging them excitably around the pen. In support of his statement, that raccoons can be profitably farmed, Mr. Loffelmacher makes mention of the fact that the eight young of one female coon last year sold for a total of \$80.00.

The Adirondack Mountain Silver Black Fox Co., Inc., of Newport, N. Y., has just issued from its office a beautiful sixteen page booklet dealing with fox ranching as an agricultural pursuit. It is understood that it is to be sent out to the farmers of New York State, with a view of interesting them in fur farming in general and fox ranching in particular. One of the interesting things contained in the booklet is a comparative statement of the cost of maintaining a pair of foxes and a cow, with the comparative earning power of each. The statement is conclusive and convincing, and is one of the best arguments we have seen why a farmer should raise foxes in captivity in connection with his other live stock production.

The Berks Lehmont Fur Farms, Inc., of Reading, Pa., write in that they have had a very successful breeding season. They have a ranch consisting of 22 acres, located within four miles of Reading, along the William Penn Highway of Philadelphia, an ideal location, and a fine ranch of twenty pair of high grade animals, from which they have raised fifteen healthy pups, all in good condition.

Frank F. Tuplin, R. F. D. No. 1, Alpine, Michigan, has just issued a neat booklet entitled, "A Treatise on Silver Fox Farming," which is copyrighted. This is a fine piece of the printer's and engraver's art, and contains a fund of valuable information regarding the origin of the silver black fox industry. Mr. Tuplin is no novice in the game, and his booklet deserves and will receive careful consideration on the part of those interested in the industry.

If you believe in an American publication for the American fox and fur farmer show your belief by sending in your subscription and your advertising contract.

Game and Fur Farming Exhibit in Minnesota

State Game and Fish Departments Assist in Putting on
a Splendid Exhibit of Fur-Bearing Animals
and Game

The Fish and Game Department of the State of Minnesota were very much interested in the game and fur farming exhibition put on at the State Fair, recently held at Minneapolis. The exhibition was a complete success from every standpoint and we are pleased to reproduce below a letter received from Farry J. LaDue, Assistant Commissioner of the Game and Fish Department of St. Paul, Minn., in which he tells something about the exhibit and also gives a list of those who exhibited.

St. Paul, Minn., September 14, 1921.

American Fox and Fur Farmer
406 Arcade Bldg.,
Utica, New York

Gentlemen:—

As far as I know this was the first game and fur farming exhibition in the United States. Black fox shows have been held at Boston and Muskegon but I saw nothing but foxes at these exhibitions. Our building was very attractively decorated with a carload of evergreens and the animals and birds were all placed in commodious pens. Those requiring water were furnished tanks of good size enabling the animals and birds to disport themselves in a natural manner.

The exhibit received more favorable comment than any other show on the grounds. We estimated that fully three hundred thousand people went through the building. The Fair Management aided us in every way possible and assure us that we will be given a similar space next year. We will plan accordingly and hope to put on an exhibition in 1922 that will surpass anything of a similar nature ever attempted in the United States.

The following exhibits were on display:

Wild mallards—Canadian geese, C. J. Lenander, Minneapolis, Minn.

Mink—George C. and F. W. Hall, Farmington, Minn.

Blue Fox—J. S. Chastek, Glencoe, Minn.

Black Fox—Ben Robertson, Grand Marais, Minn.

Blue geese, snow geese, white-fronted geese, Canadian and Hutchins geese and black mallards—H. J. Jaeger, Owatonna, Minn.

Black bear—R. F. Jones, Minneapolis, Minn.

Black bear—J. M. Stigers, Isle, Minn.

Beaver—State Game and Fish Department, Minn.

Deer—Rest Island Silver Fox Co., Lake City, Minn.

Black Fox—Rest Island Silver Fox Co., Lake City, Minn.

Raccoon—Rest Island Silver Fox Co., Lake City, Minn.

Raccoon—J. A. Loffelmacher, Fairfax, Minn.

Skunk—J. A. Loffelnacher, Fairfax, Minn.

Canadian geese—J. A. Loffelmacher, Fairfax, Minn.

Canadian geese—Otto Kuntz, Waconia, Minn.

Ring-neck pheasants—State Game and Fish Department, Minn.

Water plants—Clyde Terrell, Oshkosh, Wis.

Wild rice—Geo. Hamilton, Detroit.

Raw and dressed furs—State Game and Fish Department, Minn.

Mounted birds and animals, State Game and Fish Department, Minn.

Mallards—Robert Luedtke, Young America, Minn.

Yours very truly,

FARRY J. LADUE,
Ass't Commissioner.

THE AMERICAN RED CROSS AND ITS PEACE PROGRAM

The American Red Cross will hold its Fifth Annual Roll Call November 11-24, from Armistice to Thanksgiving Day, to recruit members. Old members will be asked to renew their pledges and new members will be given the opportunity to join. The present Red Cross membership is 6,000,000. Pledges are only a dollar and these dollars will go toward the support of a program which provides service to disabled soldiers; disaster relief; aid for the war orphans of Central Europe; and promotion of public health in the United States.

The annual report of the Red Cross shows that for the fiscal year ending June 30, 1921, the Red Cross spent \$10,000,000 on service for disabled soldiers—or \$4,000,000 more than the aggregate membership receipts. It gave help to 1,508,640 men, handling allotments, compensation and insurance claims and solving the individual problems of the ex-service man. There will be need to increase this service next year because hidden disabilities are asserting themselves and an average of a thousand men a month are reporting for hospital treatment.

The annual report of the Red Cross shows that during the eighteen months ending June 30, 1921, the Red Cross spent \$1,600,000 for relief in 70 disasters and that the Society is continuously improving the network of communication between chapters which enables it to render quick assistance.

The annual report of the Red Cross shows that public health is being promoted by 1,335, public health nurses who, during the past year, made 1,144,692 visits to patients, nursed 499,800 patients and examined half a million school children.

At the 260 health centers which have been established there was, during the past fiscal year an attendance of 90,252 persons at the 6,264 clinics which were held in these centers.

The Red Cross furnished last year 1,726 instructors in Home Hygiene and Care of the Sick Classes, 883 of which were given. 258,710 students were enrolled and 86,570 certificates granted.

The work of the Red Cross in First Aid is too well known to need explaining. More than half a million railroad employees alone have taken the Red Cross course, and many large industrial and public service corporations, such as the Bell Telephone Co., have made it part of the training of their employees. Last year 5,100 classes were held, 20,172 persons certificated, and 104,496 students enrolled.

The society will concentrate its European efforts upon the children during the coming year. It will work for the war orphans of the Central states, Poland, Austria and Hungary and the Baltic states. Already it has established a chain of 90 child welfare units in these lands, while American women have been collecting used garments to send overseas.

These facts, based upon the annual report, are reasons why every fox and fur farmer should join the Red Cross!

Raymond D. Chase has started a fur farm on the shores of Little Bass Lake near Remer, Minn. His stock consists of red fox, skunk, raccoon, mink and opossum. In a recent letter he states that his animals are in excellent condition and that everything points towards a successful breeding season.

Subscribe to the "American Fox and Fur Farmer."

Trapping Moles and Utilizing Their Skins

WITH ESPECIAL REFERENCE TO PACIFIC COAST STATES

THEO. H. SCHEFFER

Assistant Biologist, U. S. Department of Agriculture

The common ground mole, especially the animal found in the Pacific Coast States, is so destructive in many localities that measures must frequently be taken looking toward its control. Until recently the mole has been captured more with the aim of exterminating a nuisance than of utilizing its skin. In this way a by-product of trapping frequently has gone to waste when an industry might have been developed or supported which would have resulted in the production of beautiful and valuable garments or articles of adornment.

To catch the mole requires the use of specially designed traps, and to capture it for its fur requires the use of a trap that will not injure the pelt. It may be taken as easily as any other small mammal and the pelts secured may be made more than to repay the trouble and time expended in ridding a lawn, garden, or field of a nuisance.

The purpose of this bulletin is to offer suggestions on the practical means of solving the problem arising when moles become troublesome, and at the same time to encourage the development of a new industry in the utilization of moleskins. The publication deals largely with the moles of the Pacific Coast States, especially Washington and Oregon, but the suggestions given apply, with modifications, to all locations where moles are found.

Moleskins in the Trade

Moleskin garments have been fashionable in this country, particularly in the larger eastern cities, for several years and fur dealers consider it probable that undressed mole pelts will continue indefinitely to have a marketable value, the value fluctuating, of course, with the demands of fashion. In England, Scotland, and some of the continental coast countries moles are trapped extensively both for their pelts and for the private bounties paid for their extermination on certain estates. The sole source of supply of moleskins for use by manufacturing furriers of this country hitherto has been the pelts of the European mole, obtained through importations from London. In a period when moleskin garments are in fashion the volume of business in furs of this class will reach two or three million dollars annually.

American Moleskins

The Biological Survey has found that the skins of certain American moles are of much greater value for the furrier's purposes than those of the European species. They should therefore be classed by themselves. This applies particularly to the skins of the common large mole of western Washington and Oregon, which are larger and have better texture and fur than those of Europe. Since this fact has been recognized by a number of the more important fur dealers a demand for American moleskins at prices remunerative to the trapper has developed. Bulk orders for immediate delivery, however, could not be filled, inasmuch as it has not been generally known that moleskins had or were to have a market value.

Where To Trap

The mole is not adept at concealing evidences of its presence in lawns, gardens, or fields. Telltale ridges or conspicuous mounds of earth plainly indicate the runways. The ridges show the direction and course of the animal's hunting paths, which are so close to the surface that the sod or the soil crust

is upraised. The mounds indicate deeper tunneling; for they are formed of earth pushed up from lower workings, where the soil is too compact to be simply crowded aside. Such mounds thickly dot the mole-infested areas of the Pacific coast country, but are of much rarer occurrence in the habitat of the eastern mole. The mounds of the Townsend and other moles of the Northwest resemble superficially the earth heaps thrown up by pocket gophers, but they can be distinguished from the latter by casual inspection. The mole heaps are the more symmetrical and are built up, volcano fashion, by successive upheavals beneath and through the center of the pile, the soil, in compact little masses, rolling down the sides from the summit. The pocket gopher, on the other hand, brings up the soil excavated in its workings and dumps it on the surface in armfuls, thus forming low, semicircular or fan-shaped accumulations of fine dirt more or less to one side of the burrow exit.

Many of the deeper runs of the mole are highways of common traffic, used often by a number of individuals and frequented also by shrews and certain species of field mice. Good catches usually may be expected from continued use of the trap in these highways, which commonly follow fences, hedges, walks, plant rows, and the ridges of open fields. Such situations are the more frequented by the mole because they offer some concealment or shelter and are less often disturbed by the activities of man. It is especially desirable to trap in such places when one wishes to avoid, in the operation, the disfigurement of lawns and garden beds infested by moles that have come in from the main runways.

It will pay to set traps on ridges over temporary hunting paths only when these have been constructed recently in damp soil, or, at least, have not become so dry that the mole no longer finds profit in following them in search of food. Since the ridges usually have many turns and windings, it is well to set the traps on a part of the path that takes a straight course.

It is seldom worth while to set mole traps in a dry place. The animal delights to work in a moist, rich soil, for there the digging is easy and there its food abounds. Then, too, a satisfactory adjustment of the working parts of a trap can not be made in dry dirt. The more recent the signs of mole activity at any particular spot the better the chances for successful trapping. It will pay to run the traps twice a day, morning and evening. In the summer season they should be visited also in the middle of the day, for the hair soon becomes loose on a mole pelt in even moderately warm weather.

When To Trap

Trapping moles in the Pacific coast country may be followed successfully at any season of the year and at any time when weather conditions will permit. In the Eastern States the work will be more or less hindered in winter by snows and by severe freezing weather. Moles are active all winter, however, and frequently have been caught along grass-grown fence rows and in the deeper runways of open fields when the ground was frozen so hard as to necessitate the use of a pick in setting traps.

The fur of the mole is perhaps at its best in the winter season, but it is classed as prime in midsummer also. Less seasonal variation is found in the palage condition of this bur-

rowing mammal than in that of the fur-bearing animals that live mainly aboveground. Nevertheless, during the molting periods in spring and fall there is a deterioration in the value of the mole's fur. In the Puget Sound region most individuals among the common moles undergo the fall molt in October and early in November. The spring pelage change is less marked and is more irregular in its occurrence, the times of molting varying with individuals, sex, and weather conditions. In a collection of more than 600 skins of the common mole, taken in western Washington in all weeks of the year, the percentages of prime skins for the several months ran as follows:

Month	Prime skins	Month	Prime skins
January	100	July	80
February	75	August	95
March	75	September	65
April	50	October	10
May	80	November	15
June	90	December	95

The basis of classification in determining these percentages was the appearance of the leather side of the dried pelt—clear tan color for the prime skins and spotted or blotched with bluish black for those not prime. Moleskins are mainly thus graded by fur buyers, although, of course, the size of the pelt and the care with which it has been handled will partly determine its value. Skins are considered marketable no matter at what season of the year they are taken, but clear, prime pelts command the better prices.

Mole Traps

In Europe a great many moles are taken by means of homemade snaring devices. The trappers there also make use of both wooden and metal traps that are cheap and of simple construction. All types of mole traps in common use in America are made of metal and depend for their operation on the same sort of tripping device—a trigger pan designed to rest on an obstruction produced in the mole's runway when the trap is set. The trap is sprung when the mole follows its natural instinct to reopen the run by burrowing through or upheaving the obstruction. The entire mechanism of such traps is above ground or concealed in the loose soil, no part being within the runway proper. It is a waste of time to try to catch moles with ordinary steel traps, rat traps, gopher traps, or like devices, for the animal almost invariably burrows under anything thus introduced into its runs.

The catching and killing mechanisms of American mole traps are of three types: (1) Choker loops, (2) gripping or scissor jaws, and (3) impaling spikes. Several different makes of the impaling or harpoon trap are on sale, particularly in the East and Middle West. In actual use, however, they are the least efficient of the three types. They are large, clumsy devices, record a low percentage of catch, and have the additional disadvantage of injuring the skins of moles that are trapped for their fur.

How To Set Traps

No better tool for use in setting mole traps can be found than a good, strong garden trowel. Make the break or opening into the burrow no larger than is necessary to accommodate the trap; otherwise the mole may deviate from the original course and pass through without being caught. Even when placing the trap on one of the shallow hunting paths, it will pay to dig into the runway and adapt the setting to known conditions, rather than to set from the surface by simply forcing the loops or the jaws into the soil. Sometimes, also, in digging, three or four forks of the burrow are discovered, and there is nothing to do then but fill the break and try elsewhere. So far as the

writer's observation goes, no importance should be attached to the admonition sometimes heard to disturb the mole's runway as little as possible when setting the trap and to use gloves in the operation, lest the animal get the scent of human hands.

The location of one of the shallow hunting paths of the mole is indicated plainly by the surface ridges. To find a deep runway from which a mound of earth has been pushed out, clear away the latter and feel or prod for the short passageway running obliquely down to the main tunnel. Follow its course, usually only a few inches, and place the trap on the main run.

Scissor-jaw traps.—To get the best results with the scissor-jaw trap the soil in which the setting is made must first be loosened with the trowel and freed from sticks, clods, or pebbles. The jaws of this trap must close in the soil and will, of course, act the more quickly the less they are obstructed. Make the excavation for the trap a little deeper than the level of the bottom of the runway, for the tendency of a mole is to pass under rather than to one side of a break or obstruction in its burrow. Having definitely located the course of the runway, fill in enough loose earth to hide and obstruct the passage, and settle the trap snugly into place, the jaws straddling the course. Tap the trigger pan down with the end of the trowel handle and lastly, release the safety hook that holds together the bows of the trap. Do not pack the earth in the excavation nor fill in dirt higher than the top of the jaws.

Choker-loop traps.—In setting the choker-loop trap less attention need be given the matter of getting the soil fine and loose. The loops may be firmly forced into the ground with the certainty that they will react promptly when the trap is sprung. Traps of this type will also stand up to the work better than the other when used in heavy clay or gravelly soils. When placed in position on a mole runway the loops should encircle its course and reach a little deeper than the level of the bottom of the run. Before setting the trap in the place prepared for it fill in enough loose earth to come up against the frame. A convenient way of getting the trap into position is to hold the end of the trigger wire down with the left thumb, the fingers grasping the spring arm. Then with the free right hand compress the damp soil beneath the trigger pan, or place a little piece of sod under it, so that the two will be in snug contact when the setting is completed.

Skinning Moles and Handling the Pelts

The process of skinning a mole is very simple and with a little practice one should be able to put eight or ten pelts an hour on the drying boards. The skin envelops the body of the animal rather loosely, and in the larger species is so tough that there is little danger of tearing it with ordinary handling. The best tool for the work is a small, strong pair of scissors about four or five inches long, with one blunt-pointed and one sharp-pointed blade. A scalpel or a sharp-pointed pocket knife may be substituted for the scissors.

Proceed as follows: With scissors or knife make a slit in the skin down the middle of the belly from chin to root of tail, taking care not to cut through into the abdominal cavity. Now, with thumb and fingers loosen up the skin on the hind quarters and turn it wrong side out down to the ankles and the root of the tail. Snip off legs and tail at the points mentioned, without cutting the pelt. Grasping the body with one hand and the skin with the other, continue the process of turning the latter wrong side out until the wrists are reached. Sever the arms at these points as was done with the legs at the ankles. This process may require a heavier pair of scissors, however, for the bones are thick and strong. After a little snipping at the connective tissue about neck and head, the skin can be pulled over the nose and off the body entirely.

Stretching and Drying

When the skin is off, pick from it any bits of fat that have adhered and snip off the dangling legs and tail in such way as to leave the smallest possible hole in the skin. Now pin the skin out on a board to dry, fur side down, first tacking the four corners, then using four, and finally eight more intermediate pins. A light tack-hammer will serve to drive the pins, and a pair of forceps with corrugated tips to help in the stretching.

Hang the drying boards where the air circulates freely, but not in the sunshine. In a few days or at most in two or three weeks, depending upon the humidity of the atmosphere, the skins will be as dry as parchment and may be stored away indefinitely. They need no treatment with preservatives of any sort, but must be kept in a cool, dry place safe from insects and mice.

English moleskins are stretched on drying boards in rectangular form, four pins only being used. In this shape they do not dry so well at the edges, however, nor do they show to the best advantage when marketed. Cased moleskins, that is, those removed without being slit down the belly, are harder to grade than those handled flat. For this reason they are likely to bring lower prices. It seems worth while, also, to standardize the method of handling American moleskins described above so that they may be distinguished readily from the European skins.

Utilizing Moleskins

As a rule the farmer boy or the trapper who has accumulated a lot of moleskins will want to dispose of them as he would any other kind of pelts, by selling to a reliable fur dealer. If local furriers do not handle this class of skins information concerning current prices and methods of shipping may be obtained by writing to establishments doing business by mail. Inquiries in matters of this sort addressed to the Bureau of Biological Survey, Washington, D. C., will receive prompt attention.

Tanning

If it is desired to make up the skins at home into articles of apparel, the following method of tanning them will be found very satisfactory:

For a tanning liquor, add to each gallon of water one quart of salt and one-half ounce of sulphuric acid. This mixture should not be kept in a metal container. Moleskins need not remain in the liquor more than one day, although no harm will be done if they are kept there indefinitely.

When removed from this liquor the skins are washed several times in soapy water, wrung as dry as possible, and rubbed on the flesh side with a cake of hard soap. They are then folded in the middle over a line, hair side out, and left to dry. When both surfaces are barely dry and the interior is still moist they are laid over a smooth, rounded board and scraped on the flesh side with the edge of a worn, flat file or a similar blunted tool. In this way an inner layer is removed and the skins become nearly white in color. They are then stretched, rubbed, and twisted until quite dry.

Matching Skins

When matching skins in a piece the best appearance is produced by arranging them so that the fur of no two adjacent skins strokes in the same direction.

The great bulk of the moleskins supplied to manufacturing furriers in this country are dressed and dyed ("blended" or "ripped") by special processes involving the use of machinery. Most of this work is done in a few establishments in New York City, Brooklyn, and, more recently, St. Louis. The leather side of the pelt is commonly dyed to prevent its light color from showing at the seams in a garment or where the fur may chance to part. This process, it is claimed, does not affect the color of the fur itself, which may be subjected to another bath in a dye to secure a uniform shade in all the skins.

Moleskin Garments

The best grades skins are not always dyed and very pretty fur pieces may be made up at home or by a local furrier without any blending, provided one has skins enough from which to make satisfactory selection. From a dozen to twenty skins of the common mole of the northwest coast are sufficient to make an average-sized neck piece for ladies' wear. Twenty skins will make a muff of average size, and 30 skins a large one. At least double these numbers of skins of eastern moles will be required for the same purposes. The moleskin cloaks displayed in shop windows usually contain four to six hundred pelts of the European mole, depending upon the length of the garment. Not more than two-thirds as many skins of the Townsend mole would be needed for such cloaks.

BEAVERS AND MARTENS MAY AGAIN BE TRAPPED IN ALASKA

Under new regulations promulgated by the Secretary of Agriculture on August 30, 1921, for the protection of all land fur-bearing animals in Alaska, an open season is provided for trapping beavers and martens in the Territory. This announcement will be read with interest by trappers in Alaska and by fur dealers in the United States, since there has been no open season for killing beavers there since 1910, and none for martens since 1916. Prior to the time when close seasons were established on these valuable fur-bearers the animals were being rapidly exterminated. In many localities, in the interior of Alaska beavers had disappeared entirely and martens were rapidly diminishing in numbers. It was to conserve them and permit them to increase that the close season was provided.

Because of the varying climatic and physiographic features of different parts of Alaska, and in order to conserve our fur resources with justice to all, the Territory is divided into three trapping districts, in each of which the conditions relating to fur are comparatively uniform. District No. 1 includes the Aleutian Islands, the Alaska Peninsula and neighboring islands, and southeastern Alaska, mainland and islands, from Yakutat Bay to Dixon Entrance, and in this area beavers now may be trapped from December 1 to March 31 and martens from November 16 to March 31. District No. 2 includes the mainland and islands north of the areas of District No. 1 as far as the headwaters of the streams flowing into the Arctic Ocean north of latitude 68°. District No. 3 includes the region drained by the streams entering the Arctic Ocean north of District No. 2. In both these districts the open season for killing beavers and martens begins November 16 and ends March 31.

The Bureau of Biological Survey, United States Department of Agriculture, which administers the law protecting land fur-bearing animals in Alaska, has been conducting investigations for the past year with a view of again permitting the killing of beavers and martens where practicable. These investigations have shown that while in some few districts beavers and martens are still scarce, in many others they have increased to the extent that no harm will result in allowing them to be killed during at least one season.

PROGRESS IN GOVERNMENT TESTS

The Bureau of Animal Industry, United States Department of Agriculture, which is conducting tests in crossing Karakul on American sheep, gives this report of progress in answer to an inquiry: "While we are still experimenting with crosses of Karakul on Cotswold and other long-wool sheep, we have not gone far enough definitely to ascertain the value of such crosses, except to say that they are promising. There does not seem to be any doubt as to the hardiness of the sheep. What their value may be for mutton is yet to be determined."

GAME EXHIBITS AT STATE FAIR STIR THE LURE OF WOODS AND DIM TRAILS

Live Animals Are Shown in Many Varieties; Big Game Specimens Are Mounted; Miniature of Lakes Attracts Lovers of Outdoors

St. Paul Pioneer, St. Paul, Minn.

Even in view of the falling prices of furs, it's enough to make a man decide to throw up his regular job and engage in trapping just to visit the display of fur-bearing animals in the cattle barn converted to that purpose at the Minnesota State fair.

There are many varieties of live foxes, ranging from the common reds to the blue, black and silver-tips; baby raccoons to entertain the little folk, cub bears, mink, deer and numerous other wild animals, and a great pen devoted to game birds.

Chart Is Interesting

Moreover, there are mounted moose, elk, caribou and deer, and an interesting part of the exhibit is a series of charts showing the natural ranges of various game birds and animals in Minnesota, and showing the old buffalo ranges at different periods.

When one of the keepers confides the market value of a black or silver fox, for instance, it's enough to send any man into the big north woods with a string of traps. Water tanks, surrounded by evergreen boughs, lends "local color" to the animal exhibit, which is in charge of Harry LaDue, deputy game and fish commissioner.

Sportsmen Are Attracted

As usual, the Fish and Game building is attracting thousands of anglers and sportsmen, and the display of game fishes is most complete. It includes many varieties of trout, bass, pike and pickerel, sunfish and crappies, channel cat and various rough fishes, such as buffalo, carp and sheephead.

Another attraction to sportsmen and all lovers of the outdoors is the exhibit of the Ten Thousand Lakes of Minnesota association, in conjunction with the United States forestry service, in the St. Louis county building. Entering the exhibit building, one passes beneath a great arch, apparently of pebble-dash, but in reality built of concrete in which St. Louis county potatoes are imbedded like stones.

Miniature Chain of Lakes

The lakes exhibit consists of a miniature chain of lakes and streams winding through miniature forests of coniferous trees, the sand beaches of the lake shores dotted with miniature summer homes and resorts. The "properties" of the forestry service in Superior National forest are distributed through the miniature forests, and one learns how the rangers are ever on the lookout for fire or other destructive elements, and how they cope with them in an emergency.

The state forestry service also has an independent exhibit at the fair this year, and in the aggregate "Out-door Minnesota" is well represented.

News Notes of National Fox Breeders Association

By J. E. SMITH, Secretary

Dear Member:

The following have made application for membership in the association since the last circular letter was mailed: Edwin B. Haas, Grand Rapids, Michigan and Ed. Poulin, Muskegon.

Two gentlemen, Walter H. Mallor and Walter Greenbaum, both of Michigan City, Indiana, are interested in the Silver Fox Industry and are looking for information. It may pay you to get in touch with them.

The first meeting of the show committee was held August 22nd. The following men comprise this committee: E. L. Ransford, George Stanley, A. L. Williams, Earl Alberts and H. A. Bauknecht, Muskegon and J. S. Sterling, Lake Placid, New York, E. M. Robinson, Spokane, Washington, Arthur Schleicher, Lake City, Minnesota, and George Tuttle, South Ryegate, Vermont. At this meeting it was resolved:

1. That the show will be strictly American.
2. That there will be two main divisions, one for the Alaskan strain foxes and one for the standard strain.
3. That each division be subdivided as follows: adults and puppies; males and females.
4. That each sub-division be divided into four color phases as follows: Black, including ten per cent. silver; dark, from ten to 25 per cent silver; Medium, from 25 to 50 per cent silver and Light, from 50 to 100 per cent silver. This will make a total of 16 classes in each division or thirty-two classes in all.
5. That the entry fee be \$5.00 per fox.
6. That entries will close November 10th.
7. That the admission fee be as follows: Season tickets, \$1.00 each; Single admissions, adults, 50 cents; children, 25 cents.
8. That each exhibitor be required to make a sworn statement as to the true ownership of the foxes he enters, and that the foxes have been in the United States at least six months next prior to the date of the show.
9. That a show program and premium list be prepared and advertising space therein sold at the following rates: Full page, \$25.00; half page, \$15.00; quarter page, \$10.00.
10. That no one be allowed to distribute literature other than the show programs and the United States government bulletins except exhibitors and renters of booths, and that all literature must be censored by the executive committee.
11. Booths will be rented at the rate of \$25.00 for the entire three days of the show.

From all indications it appears that the Armory will be filled to capacity if a limit is not placed on the number of foxes each exhibitor is allowed to show. It is planned to make arrangements for about 200 foxes. That will leave a comparatively small space for the erection of booths which will be rented to those making first applications.

It is planned to make the Show Program something that will be kept for years as a souvenir of the Second Annual Live Fox Exhibition. Besides the list of entries and premium list it will contain a detailed history of the industry in this Country and photographs of foxes and ideal ranches. It will be a splendid medium for advertising to everyone, whether they have anything to sell at present or not. Members are urged to take as much advertising space as they can possibly use. Try to get a good picture of your ranch or foxes for your ad. It adds to the appearance and also makes a more attractive advertisement.

Entry blanks will be ready in a few days and will be forwarded to you upon request.

The committee have also added a class for blue foxes, cross foxes, white foxes and red foxes. This will make a variety and no doubt will be a drawing card to the public. It will give the public an opportunity to see the difference between the various grades of foxes and learn the reason for the exclusiveness of the silver fox.

Co-operate with this publication by sending in your subscription now.

FUR-FARMING POSSIBILITIES

By H. J. LA DUE

From "Fins, Feathers and Fur," June

The lucrative and interesting profession of fur-farming has been more or less neglected in Minnesota. Valuable fur-bearing animals are decreasing rapidly owing to excessive trapping, destruction of forests, drainage of lowlands and increasing cultivation of the soil. Fur garments have always been in demand by mankind and so long as Dame Fashion so decrees, and as long as people living in cold or temperate climates need protection from the cold that demand will probably exist. The rapid increase in population, the growing use of the automobile and the habit of living outdoors have not only made furs a necessity but a scarcity. At the present time the demand exceeds the supply, especially for the less costly furs. There seems to be but one solution of the problem and that is domestication of the fur-bearers.

Like most successful ventures, fur-farming should be tried and experimented with in a small way by the average individual before investing a large amount of capital. There remains a great deal to be learned beyond the mere procuring of the breeding stock. The effect of the climate, natural suitability of your chosen site, breeding, feeding and rearing experiments are all important factors for or against ultimate success, so it behooves one to make haste slowly.

Fur-farming as a side line to regular farming operations stands the greatest chance of success for a variety of reasons. Chiefly because the farmer or farmer boy engaging in the work will have other sources of income to fall back on while making the start, will have ample room and natural surroundings for his stock and will also have the advantage of being able to feed his animals with waste and by-products of the farm. Thousands of farms have little corners on them unsuitable for agricultural or live stock purposes. Wood lots, rocky hills, ravines, marshes and small ponds can be utilized and made into the most productive and profitable locations on the farm.

The capture of wild stock should not be attempted in the spring or early summer because at that time the young are entirely dependent on the female parent for sustenance and her capture means the death of the entire litter. Of course if the den of the animal is found the opportunity to procure young stock should not be passed by because in the young stock lies the only chance at domestication. If the breeders must of necessity be taken by trapping use some form of box trap for the purpose. The use of steel traps will result in unnecessary suffering and probably permanent injury to the animal.

The physical characteristics of your chosen site will be the determining factor in choosing the kinds of animals which you wish to propagate. For instance, if you own a small marsh or shallow lake, the muskrat will prove the most profitable. A clear, running brook with fairly level banks and not subject to bad overflows will be found most suitable for mink and coon. Rocky hillsides, ravines and, in fact, most waste places are equipped with suitable sources for a pure-water supply, excellent sites for fox, skunk, mink and coon fur-farming.

The Muskrat

The pelt of this interesting little fur-bearer has gradually gone up in value. Prices paid this past winter on raw furs have averaged from \$1.25 for No. 1 medium grades to \$2.75 for No. 1 extra large grades. The muskrat is remarkably prolific, breeds three times a year and the number of young raised each time averages about six or eight.

Persons controlling marsh lands can easily convert them into a profitable muskrat fur-farm. If absolute control of your stock is desired it will be necessary to run a low fence around the marsh. This fence ought to be back several rods from the shore so as to give the animals ready access to the roots and plant life surrounding the marsh. The habits of the animals should be thoroughly studied. This study will undoubtedly make it possible to make improvements in nesting and feeding conditions. If a large number are reared on a small marsh the natural food supply will have to be augmented by vegetables and fruits. The important natural root plants should also be studied and replaced when ever possible. Cattails, sweet flag, lilies, rushes and other aquatic plants can be easily planted provided a little study is given to their seeding and germinating habits. The utilizing of natural food will make for economical operation of the farm. Ranch-raised pelts will bring top prices because it is possible to take them at that season of the year when they are in their best condition and more humane methods of killing can be used than the old steel trap and snare methods, resulting in perfect pelts.

Skunk

Another Minnesota fur-bearer whose pelt has gained favor in late years is the skunk. Prices this past season ranged from \$2.00 for medium broad-stripe animals to \$12.00 for large blacks. With a continuous high price the supply is bound to become depleted in the near future. The average farmer looks on the skunk as a pestiferous species of vermin responsible for bad odors and raided chicken coops. As a matter of fact the skunk is an important economic asset to the farm. His principal food consists of injurious insects, such as crickets, grasshoppers, beetles, grubs, worms, bugs of all varieties, frogs and wild vegetation. A goodly percentage of poultry depredations if run to earth can be traced to the weasel, mink and fox.

The skunk easily adapts itself to domestication, given proper quarters and food and it develops into a most interesting animal in captivity, losing much of its objectionable characteristics.

Some breeders remove the scent sac from their young skunks while others claim that if the animals are handled gently this is entirely unnecessary. They also contend that the operation causes the death of some of the skunks and that the removal of the scent glands creates an unnatural condition which is partially responsible for the lack of lustre in the fur of the ranch-raised skunk.

There is no reason why domesticated skunk can not be raised in such a manner as to produce the finest grade pelts. In order to accomplish this the rancher must lay out his pens with care and forethought. They must include well drained lands with both sunny and open places as well as underbrush and timber and the water supply must be pure and fresh. In fact, if a pond is included in the runs, so much the better. The insect life and the frogs, snails, etc., found around its borders forms an important part of the skunk's diet. Insects are featured so strongly on the animal's bill of fare that there is no doubt that the lack of them has a lot to do with the lusterless pelts produced on some of the fur farms.

Live stock breeders know that proper balanced and seasonal feeding rations are positively necessary in order to produce healthy, glistening coats on their horses and cattle. As the pelt

of the fur-farm stock is the prime consideration, breeders who hope to attain even a fair degree of success must study and duplicate the natural foods of their fur-bearers as well as furnish them with clean, roomy quarters and pure water.

Mink

The mink has been successfully kept in captivity and the young have been easily reared and domesticated. The pelage of the mink is dense and when prepared by the furrier soft and beautiful in color. This fur is somewhat subject to the whims of fashion, still as evidenced by the prices quoted last winter, it manages to hold its own. Medium grade pelts sold for \$4.00 while fancy, extra large pelts brought as high as \$12.00. These furs have been found especially adaptable for use in making up the small animal neck-pieces so popular amongst the motoring public.

The mink furnishes the rancher excellent opportunity to improve his breeding stock. They are naturally polygamous and therefore render themselves easily to the breeders program for a proper selection of sires and resultant rapid improvement in stock.

Water is a prime necessity on the mink farm, therefore land through which a small brook flows or a site along a lake or pond will prove the most suitable. This site should be well covered with trees and bushes, as protection from a blistering sun is necessary in order to produce dark, lustrous fur.

Mink thrive on a diet of bread and milk, fresh meat, fish and frogs. The female with young especially requires milk as a prominent feature of her diet. Cheap, fresh meats and fish are usually easily obtained. Some breeders have been successful in feeding English sparrows to their stock, while others feed rabbits, either wild or tame. The fur-farmer raising natural meat eaters can feed fresh meat very economically if he will but raise rabbits for that purpose. Fresh rabbit meat will keep, not only mink, but foxes, skunks and raccoon in the best of physical condition.

Mink raise one litter of young a year, consisting of five young, on the average. The parents require careful handling during the breeding and rearing season. The male shows cannibalistic tendencies toward his offspring and must be separated from his family. Likewise the females must be separated from each other lest they kill their respective young.

Raccoon

The material for several of the popular coon skin coats can be reared in a small patch of woodland through which a brook runs or on the border of a marsh or lake.

The motoring and outdoor enthusiasts have found the pelt of this animal peculiarly adapted to their requirements and prices of \$4.50 for medium grade furs up to \$10.00 for choice large skins, received during the past season, indicate that the raccoon would also be a profitable animal to propagate.

The raccoon breeds once a year and the young average from four to six in number. A limited number of both sexes can probably be allowed to run together in the same enclosure. They are omnivorous by nature and can be fed a variety of food. Fresh meat, frogs, fish, insects, fruits and corn meal will be eaten with avidity.

If the location does not include a sufficient number of large hollow trees for dens substitutes may be installed well up in the trees in the form of hutches made warm and dry by covering with roofing paper.

Rich, mahogany colored pelts bring top prices and the breeder should endeavor to weed out the inferior animals and raise the quality of his stock by breeding only perfect specimens. The flesh of the raccoon is much in demand in season and a ready market for it can be found at hotels, clubs and dealers in meats as well as among sportsmen for game dinners, etc.

Fox

The fox has been the subject of many experiments in fur-farming during the past few years. That the experiments have been successful is proven by the enormous amount of capital being invested and by the constant additions to the already large list of breeders, especially in the southern provinces of Canada. Minnesota's topographical and climatic conditions compare very favorably with those of our neighbors to the north and east and, as has been demonstrated by several breeders, the fox, in all its color and texture phases, can be reared in this state as successfully, as anywhere in temperate North America.

The red fox, common throughout the state, is the proper member of the *Vulpes* family for the novice to practice the rudiments of fox-farming on. The pelt of the red fox, while not bringing in the fabulous prices derived from the silvers and blacks still, has a good market value and this past season the fur houses quoted prices of from \$17.00 for medium grade pelts up to \$45.00 for No. 1 extra large pelts.

Foxes should be ranched in a wooded area with good drainage. The combined humidity and protection from raw prairie winds and the hot sun furnished by a wooded cover render a much softer and thicker fur on your animals. Considerable care must be exercised in building pens and runways for foxes as they are continually utilizing their inherent cunning and intelligence in making efforts to escape. Wire netting fences must be of the best material and the posts must be well set. Fences on the black fox farms of the north, holding as they do such valuable stock, are unusually well constructed. Posts are set deep, wire sides are ten to twelve feet high, depending on the average snow-fall to be expected, the over-hung wires are about two feet wide and well braced and the ground wires extend inward slightly underneath the surface some thirty inches. Foxes are kept in pens placed side by side on both sides of an alley about eight feet wide on the large ranches. As an additional protection the combined set of pens are usually enclosed in a large pen or yard. Kennels are provided for the animals, either boxes or barrels with a chute entrance.

The fox thrives on a diet of a varied character. In the wild state they eat mice, rabbit, birds, insects, fish and berries. Realizing this the successful breeders have fed not only horse meat, cheap beef, scraps, rabbits and fish, but also a non-flesh diet of biscuits, vegetables, berries, fruit and bread and milk. Absolute cleanliness is necessary in and around the pens and especially in the feeding dishes in order to ward off disease.

They breed once a year and the number of young averages about five to adult parents. In the wild state the fox is monogamous. In confinement, however, one male has sometimes been mated successfully with two or three females. Extreme care must be taken of the mother fox when rearing the young. They show considerable individuality in temperament and habits and therefore must be studied and experimented with.

The wise breeder will endeavor to improve his stock by selective breeding. The darker animals are the most valuable, hence the rancher should retain his darkest stock for breeding. Experiments conducted on large ranches prove conclusively that some of the best skins ever produced are those of silvers having red parents. The breeder can continue raising the red strain in the hope of one or more of his females throwing a cross or patch pup or he can purchase a cross fox from other breeders and then gradually breed up to the silvers. Results obtained by this manner of breeding show that once the silver strain is obtained it remains fixed and practically breeds true.

Before the war fabulous prices were paid for breeding stock and also for raw black fox furs. The record price derived from the sale of a pelt up to the year 1914 was \$2,900 and at that time breeding pairs were selling at from \$10,000 to \$35,000, according to their proved value as breeders of healthy pups. These were of course boom prices and therefore

very unstable. However, the experiments conducted have demonstrated that a fox can be kept at an annual cash outlay of as low as \$5.00 so it can readily be seen that even if prices drop down to conservative limits the fox can be profitably reared by the average person owning or controlling the necessary waste land suitable for the purpose.

The latest reports from Canada seem to indicate that the period of speculation and wild-cating have passed. The fur-farming industry appears to have settled down onto a sound financial foundation. Prices paid for black, well-furred pelts ranged from \$335.00 to \$1,200, while cross foxes brought around \$75.00 per pelt. Trading in live foxes reached a low ebb during the war but lately shows signs of reviving. One lot of twenty-five pairs sold to Japan breeders this year at a price of \$1,200 per pair and two hundred pairs sold in the United States brought from \$500.00 to \$1,000 per pair.

MINK

Mink, by reason of their fierce, wild nature are exceedingly difficult to domesticate to any degree of tractability. From time to time we have been advised of the success of individuals in taming mink, but it is a fact, that there are no large mink fur farming establishments in the United States. Individuals experimenting with this valuable fur bearer should be encouraged. F. W. Hall of Farmington, Minn. has, in captivity, five female and two male mink. One female destroyed her young when but a few days old. Two others had litters about ten days overdue and two had no young at all. Mr. Hall also states that his mink did not breed in February and March as popularly supposed, but about the middle of April. The following practical hints on mink farming have been recently published by the U. S. Bureau of Biological Survey:

1. Mink should be kept in the proportion of one male to five or six females.

2. Each breeding female should have a separate pen. The male should be kept by himself except at mating time. The females begin to rut about the middle of February. The male should be admitted to the female about one day. The young are born about the middle of April.

3. The females must be kept alone or they will be likely to kill each other's young. The male would also kill them if he had an opportunity.

4. **FOOD:** The best steady food for mink is bread and sweet milk, corn-mush and milk, or corn-mush cooked with bits of meat in it. The animals should have meat or fish about twice a week. The meat may be a very cheap kind. Keep pans clean and feed only as much as the mink will eat up clean at each feeding. Feed once a day, except females that are suckling their young. These should be fed twice. Provide fresh water regularly. Do not salt the food.

5. **PENS:** Pens should be 5 or 6 feet square, the sides of smooth, wide boards cut four feet long and set up with the lower end resting on a footing of stone or concrete 18 inches in the ground. The floor of the pen should be on the bare ground. The pens can be built economically in groups of four or more. The sides can be of heavy wire netting instead of boards, but, in that case, the top would need to be netted.

6. **BOXES:** Boxes about 2 feet by 1½ feet by 1½ feet in size should be provided for nests. They should have hinged lids so as to allow their being opened and examined. Fine straw or hay should be provided. The boxes may be outside the pens, bolted to the fence; a hole in the fence and box admits the animals, the box to be 3 or 4 inches above the ground. The boxes should be as dark as possible, with a hole 4 inches in diameter for the entrance of the mink.

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We have never had a sick or diseased fox on the ranch and have never had a crooked legged pup.

Our litters this spring were—Two litters of six, Nine litters of five, Three of four, One of three, and One of two. From a total of twenty pairs of breeders.

Eighteen of these breeders were pups of last season—**only one year old.**

Our original breeders were selected from some of the very best P. E. Island ranches, and selected by our caretaker, who has handled foxes since 1896 and has been a trapper and fur buyer for more than twenty years. He knows **FUR QUALITY** and got it—and now **FUR QUALITY** is what we are offering.

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CLOSING OUT TWENTY PAIRS CROSS FOXES—Some produce Silvers in litters and are as valuable as blacks. Two hundred Silver Blacks to select from pelt value. Ten percent. down, balance as convenient. TODD BROS., Milltown, Maine.

FOR SALE—ALL KINDS OF BIRDS AND FUR BEARING animals. Don't buy or sell until you write and consult us. GRASS LAKE FUR FARM, Grass Lake, Michigan, Floyd Gage, Prop.

Save the pelts by getting the fleas. BUHACH INSECTICIDE POWDER will do it. Send 60c for a sample can. NEW ENGLAND FOX EXCHANGE, Woodfords, Maine.

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EVERY TOWN NEEDS ITS FOREST PRESERVE

By W. B. GREELEY, Chief U. S. Forester

Every community in this country should establish a forest preserve of its own.

The individual citizen should be encouraged to plant trees and to take pride in preserving the timberland surrounding his home and townsite.

Fire and the woodsman's ax are exhausting our forests four and one-half times as fast as nature can replenish them.

Within forty years there will be few trees left, save within the confines of Government-owned tracts, unless remedial steps are taken.

Once this land had 800,000,000 acres of virgin timberland. To-day but a small fraction of that amount remains.

Denuding of timber sites and moving the source of supply farther and farther away is adding greatly to the cost of home building.

Many of the States that once were large timber producers have practically exhausted their forests and now must import almost all the lumber they use.

Pennsylvania, Ohio, Michigan, Wisconsin and Indiana are examples.

The people to-day must give thought for the generations to come.

The Government is trying to do its best. But what is needed most is individual effort and community co-operation.

Citizens should demand replanting of trees under public ownership.

They should insist that their town be surrounded with some sort of forest preserve from which no timber could be removed without permission.

People should take pride in seeing trees grow.

The attitude of the entire public must be reversed.

Forests must be looked upon as an absolute necessity.

WE OFFER FOR SALE, per order of our clients, two pair first class registered foxes, \$500 per pair. These foxes are not poor foxes but some of the best in the country but our clients need the money. Write or wire. List your wants with us. NEW ENGLAND FOX EXCHANGE, F. W. McClosky, Manager, Woodfords, Maine.

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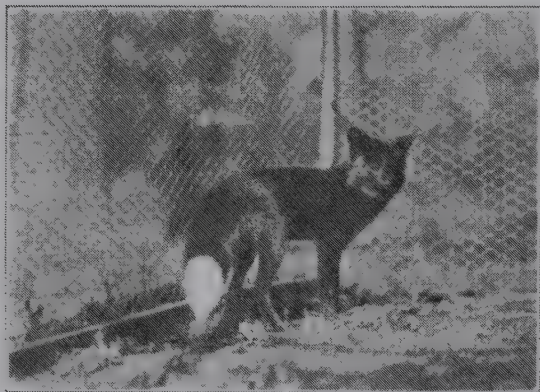
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Reading, - Michigan

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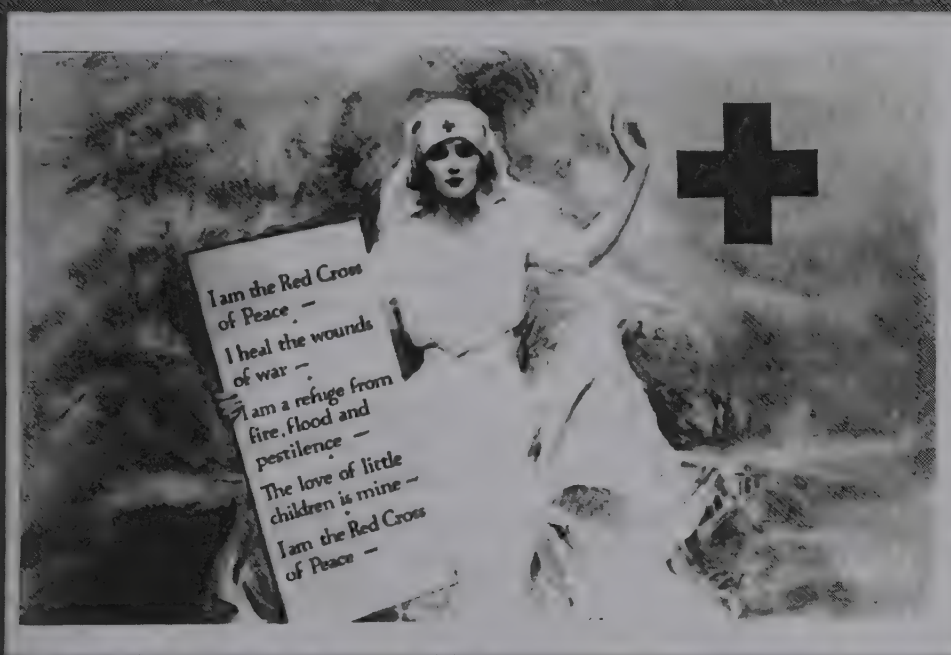
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No. 4

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 An American Publication Devoted Exclusively to the Silver Black Fox Industry and Fur Farming

WARD B. EDWARDS, *Editor*

PUBLISHED BY "AMERICAN FOX AND FUR FARMER"

WATCH FOR THESE ARTICLES

We are pleased to be able to announce that in the coming issues of "The American Fox and Fur Farmer" there will appear many interesting and instructive articles on fur farming, by George A. Jeffreys, formerly with the Bureau of Biological Survey, United States Department of Agriculture. Mr. Jeffreys had immediate charge of establishing the Experimental Fur Farm at Keeseville, N. Y., and since his return from France has been connected with The Ontario Stock Farm at Sackett's Harbor. He is a man of splendid scientific attainments and his articles may be looked forward to with much interest.

ATTEND THE FOX SHOWS

Every fox rancher who can possibly arrange his affairs should attend both of the Shows to be held by the American fox associations; one to be held in Muskegon, Michigan, by The National Silver Fox Breeders Association, and the other in Boston, Mass., by The American Fox Breeders Association. These Shows are productive of much good and ranchers will find in attendance many men who are able to give them pointers on the industry, and in addition to this they will see a fine exhibition of first class American foxes. Full particulars regarding the holding of both of these Shows will be announced in our November issue. No breeder who has the interests of the fox industry in the United States at heart should miss these Shows if it is possible for him to attend.

THE COST OF FURS

Former United States Commissioner of Education P. P. Claxton pointed out that the \$300,000,000 paid for furs in the United States in 1920 is more than twice the cost of all higher education in colleges, universities and professional and technical schools, whether supported by public taxation or privately endowed.—*News Item.*

It is also almost as large a sum as it takes to pay for the building of a new navy, or to pay the interest on a few billion dollars' worth of Liberty bonds, and it is a sum that it productive of a very valuable income to the Government and employment to 50,000 people.

Can we say as much for some of our colleges and technical schools?

THE BEAVER

Perhaps no fur-bearing animal in the world has been so widely and diversely used as the beaver. As a protection from the cold, the use of its pelt dates back to primitive man. It played a most important part in the romance of the early history of North America, and was the central figure around which

waged the wars of nations. Until a few years ago, it was the standard by which was rated all other furs and goods. This was especially true in Canada, where the beaver tally-stick has taken its place in history, and is even still in use to-day in the interior of far-distant trading posts.

FURS ALWAYS IN SEASON

No one can deny the becomingness of furs, season in or out.

But, then, furs are never worn out of season now, for Fashion has decreed that they be worn year 'round without regard to time, place or climatic conditions. It may be uncomfortable on an August day to be muffled in furs; or the latter may appear incongruous with the parasol hat, but it is already history in Furdom that Mrs. Robinson, the first woman to ever speak at a National Political convention, on a sweltering day in Chicago, in the torrid Coliseum, wore a fur neckpiece when she addressed the convention.

But, as the fashion has been established, that in itself compensates for the discomfort and incongruity.

NO "COMMON" FURS NOW

Since furs are worn the year 'round now, what a satisfaction it is to know that there are no "common" furs any more. There are, of course, reasonable pelts.

The secret of this is found in the wonderful modern art of dressing and dyeing the raw skins and the commendable lack of fraudulent titles and the deceptive names formerly used to impose furs of plebeian origin on credulous women who would have been ashamed to acknowledge the possession of a rabbit skin scarf or a coat of the lowly muskrat.

FOX RANCHING IN EUROPE

Although it is not generally known, quite a number of foxes were sold last year to parties residing in Europe, mainly throughout Sweden, Norway and Switzerland. One rancher who has supplied a number of pairs to Europeans, states that the industry is spreading in a truly wonderful manner in these countries, and that this year he expects to be able to sell practically all his foxes abroad. There is only one drawback at present to a general spread of the industry there, and that is the rather high cost of feeding, but this is being overcome, and the sale of breeding stock at good prices will amply cover the higher expense. The present rate of exchange is also a disadvantage, but this does not seem to affect those who want to start in at the business, as the Europeans are now used to this. There is most certainly a big field in Europe for the fox industry, and that it will some day amount to something big is a certainty.

MINK FARMING

By GEORGE A. JEFFREYS

Ontario Stock Farm, Sackett's Harbor, N. Y.

FIFTY years ago, mink farming had a flourishing boom. A pair of minks then sold as high as \$200. The methods of raising them were kept more or less a secret. Whether through failure or otherwise the boom died down with no comprehensive plan of raising mink being developed.

Numerous requests have recently been made, for some definite and successful plan. No fixed and entirely successful method has yet been evolved. The writer, however, has endeavored to give some of the methods he has found most successful.

Enclosures and Dens

There are two known methods of raising mink, first the semi-natural plan, where the animals are given a free range in a large enclosure, second the single pen system where each mink is penned separate.

In the first plan, owing to their fighting proclivities, the mink will kill each other more or less unless given a very extensive range. Also the mating and disease cannot readily be controlled.

A combination of the two plans, however, was found to be most successful. This simply consists of a large enough enclosure to contain twenty-five to thirty movable individual pens with some extra room for breeding operations.

This main enclosure should be about the size of a large fox pen, 50 x 50 feet to 75 x 75 feet. This is large enough to harbor from 30 to 35 mink. Fig. 1 shows an enclosure 60 x 60 feet, holding 30 cages.

The main fence should be from five to six feet high. A strip of galvanized tin two feet wide nailed along the top should compose the upper part of the fence. The lower part is of $\frac{3}{4}$ inch No. 16 gauge netting sunk to a depth of at least a foot. A carpet wire 2 feet wide of the same material is laid close to the ground next to the fence. With the tin on top no overhang is necessary. If a board fence is used, tin should be used for the top part as mink are able to climb rough boards and scantling. As many main enclosures can be built as desired.

The site for the ranch should contain a fair amount of deciduous trees for shade in the summer. The ground should be well drained and sloping if possible.

Mink can be raised without running water by providing water in the summer in galvanized deep pans or pails. Running water, however, is preferred. Fresh water accessible to minks at all times in the summer is conducive to better health and vigor in the animals. A site, therefore, that has a spring or small stream so that part of the water can be diverted by means of a pipe, is most desirable.

Individual cages are built of one inch mesh wire galvanized after weaving. Each cage is 6 feet long, 3 feet wide and 14 inches high. See fig 2. The bottom is entirely covered with the netting. The frame to which the wire netting is nailed should be built of 1 x 4 inch boards with short cedar posts for legs. A wire covered door fits over the top of the whole pen. One end of the pen should be fitted with a galvanized slide door 4 inches square. To the other end of the pen is attached a den.

The den is built of matched boards and consists of a box inside of a box. The inner box may be constructed of light material, $\frac{1}{2}$ inch matched lumber, the inside dimension being 10 inches square. The entrance is in the center of one side and three inches across. No packing is necessary between boxes, but



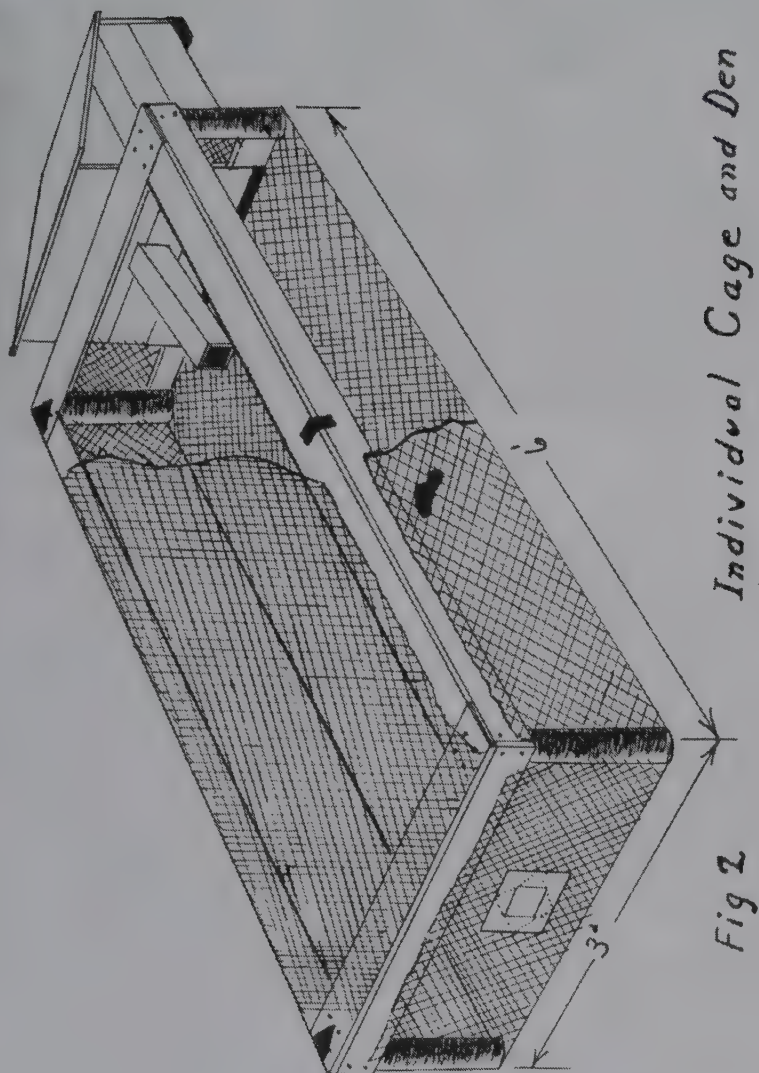
GEORGE A. JEFFREYS

Ontario Stock Farm, Sackett's Harbor, N. Y.

The above is a splendid photograph of George A. Jeffreys, who, for two and one-half years, was with the Bureau of Biological Survey, United States Department of Agriculture, having immediate charge of establishing the Experimental Fur Farm at Keeseville, N. Y. Mr. Jeffreys remained with the Department until his entrance into the military service. Since his return from France he has been connected with Dr. Ned Dearborn at the Ontario Stock Farm, Sackett's Harbor, N. Y. He is intensely interested in the fur farming industry in this country and has already contributed many articles of interest and value to the fur farmer.

great care should be taken to see that the inner nest box is always filled with soft clean grass. From the nest box, a chute 6 inches long should lead to the outside into the cage. The outside box should be about 14 to 18 inches square with a sloping roof. The cover to both inside and outside box should be hinged. The inner box is held firm by cleats on bottom and sides. The individual cages should be arranged in four rows at least 3 feet apart between cages and 6 to 8 feet apart between rows (see fig 1). This spacing is necessary so that cages can be moved to fresh ground at least once a month.

The watering pan in each cage should be a galvanized





A WELL FURRED OUT FELLOW

pan 18 inches long, 8 inches wide and 8 inches deep. Water may be conveyed to the center of the enclosure by means of a pipe. From here a rubber hose may be attached to a faucet long enough to reach each cage. A drainage trough should be provided to carry off water when emptying watering pans. A small concrete pool in the center of the enclosure is desirable but not entirely necessary. If continuous running water is to be had, the drainage from each cage should be to the outside instead of running from one cage to the other.

Obtaining the Stock

There are several distinct types of mink distributed through different parts of United States and Canada, each section having its own type according to its climate and environment. There are two types which are of particular interest to the fur farmer, the large pale northwestern mink and the smaller but heavily furred and dark northeastern mink. The type preferred by the fur trade is the medium large dark and well furred skin. This type could probably be fixed by crossing the two strains with line and alternate breeding.

In obtaining stock care should be taken to see that all males are vigorous and larger than females. This is an important fact that has received little attention. It takes a particularly strong and vigorous male to handle a female at mating time. A great deal of no mating and sterility in minks is due to weak and small males. The proportion of males to females should be one to three.

When the stock has arrived they should be placed for a week or more in hospital pens situated outside of the permanent enclosure. The hospital pens may be stationary about the same size as the breeding cages and placed on a concrete sloping base. The faeces should be collected and examined daily. Affected animals with disease or parasites should be treated to remove ailment as far as possible. The floors should be flushed twice daily. This policy carefully carried out will prevent much trouble and loss later on. Once the ground becomes infected it becomes a difficult proposition to remove danger of future contamination.

If the stock is received during the fall months, great care

should be taken to see that all nest boxes are filled with soft fine grass. The animals are very susceptible to pneumonia at this time and require a warm nest.

Breeding

In the Northern part of United States and Canada mating of mink begins about March 1 and lasts to about April 30. Two methods of mating may be carried on with individual pens in an enclosure as described above. Beginning the first week of March, a male and three or more females may be let out into the main enclosure for one or more days by means of slide door in the end of the pens. The slide doors should be left open as long as the minks are out for a mink is then able to take care of itself if it has its den to retreat into. If a female is in heat, the male will first take the offensive. He generally catches the female by the scruff of the neck and carries her squirming and squealing to a suitable spot for mating. It is in this instance where a vigorous and healthy male is desirable. Unless a male is gentle, quiet and healthy he should not be used for breeding as he will fight with every mink he comes in contact with.

Every female should be given several opportunities to mate until the end of April. That a female has mated does not indicate that she will become pregnant. I have seen females mate a half dozen times, the last mating taking effect only, as indicated by the day the young were born.

After a run of a day or two in the enclosure, the minks may be put back into their individual pens and a new male and three other females may be given the run of the yard. This should be repeated until every female has received several opportunities to mate and should be kept up to the end of April. Sometimes a female or male may become quarrelsome or nervous and in this case they should be replaced by another.

A second method of mating may be operated at the same time. A male cage may be moved end to end with a female cage, the two cages being connected by means of a short chute through the end doors. If the two do not fight they may be left together for a day or two. To insure mating other males may be tried.

The gestation period of mink is about forty-two days.

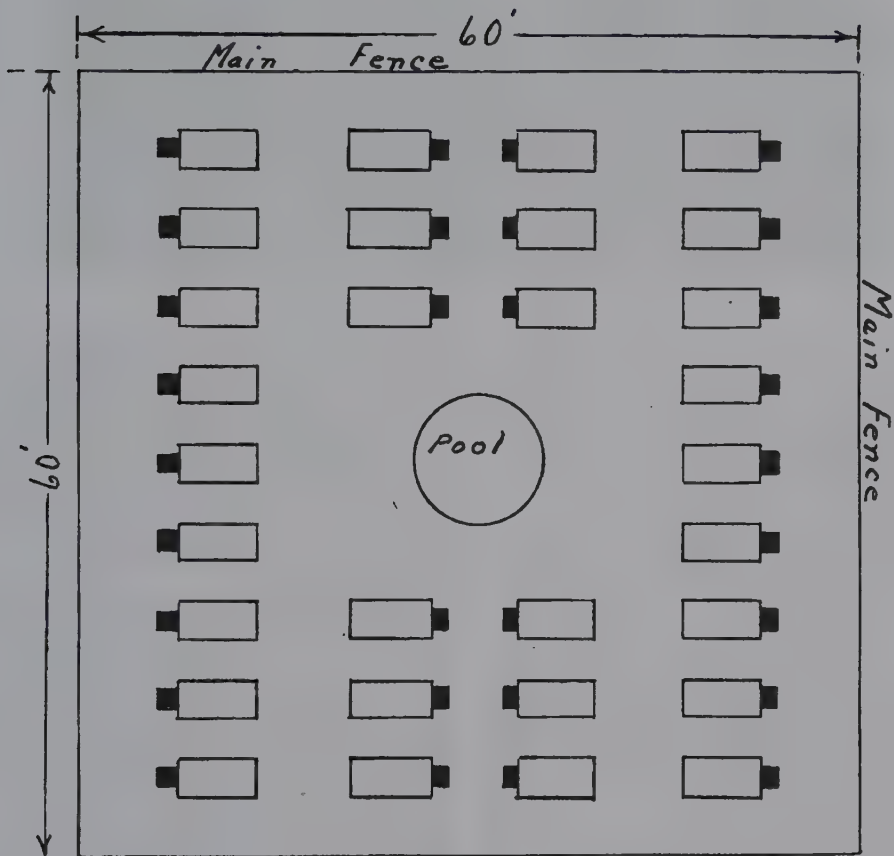


Fig 1
Arrangement of Individual Pens.



DOING SOME ACROBATIC STUNTS

The young open their eyes when four weeks old and start to come out of the den at the age of five or six weeks. Young mink should be separated from their mother when two months old. At this time they may be given the run of the main enclosure until fall. When the young are running out care should be taken to see that all adult mink are kept closed up in their individual pens.

Adult male mink cannot be left together, they most generally get into a fight and kill each other.

In cold weather females have a tendency to den up together, so at this time a few females may be left out together without danger.

Feeding and Care

Minks will thrive on a diet similar to that of foxes. Two rations a day is the rule. In very hot weather care should be taken not to feed too much. The food in the summer should be composed more of cereals and milk while in the winter meat and fat should predominate, but milk in combination with other foods should be fed at all seasons.

The best plan at all times is to feed a mush or cereal bread with whole milk in the morning, and then meat in the evening.

The amount of each ration for an averaged size mink at different times of the year is as follows. In the winter, not over five ounces of meat and not over four ounces or one-quarter pint of mush cereal or biscuit with milk. In the summer not over three ounces of meat and not over three ounces of mush cereal or biscuit.

A mush may be made composed of equal parts of bran, middlings, cornmeal and whole wheat flour or low grade flour. The liquid in which the mush is boiled should be two parts water and one part milk. Or a thick mush may be made in the water alone with the milk added afterward. The mush should be cooked in a double boiler or steam cooker. A whole wheat biscuit or bread containing five per cent. bonemeal and other ingredients such as ground meat, blood, milk and served together with milk is very conducive to good health. The diet may be varied by having biscuit and milk one day, biscuit and broth the next and mush and milk the third day and one feed of meat

each day. The meat ration may be beef, horsemeat, tripe or fish.

On very hot days minks should be fed sparingly. Pregnant mothers and those with young are fed more than others. The young begin to chew on solid food when about a month old. The food of the young should be the same as the mothers, cereal and milk predominating. In October and November the minks should be fed all they can eat as a poorly fed mink is likely to contract pneumonia at the first cold spell. If milk is fed sparingly or only skim milk is used some fat should be given along with the meat.

Fresh water, and plenty of it, should be supplied once or twice a day. Minks do not need water in the winter if the weather is cold and they have access to plenty of snow.

Diseases of Mink and Sanitation

The mink is a hardy animal in comparison to our domestic animals. But like all animals it is susceptible to a few maladies peculiar to its nature. Most of these diseases are known and can be controlled except some internal parasites such as flukes whose history has not yet been worked out.

Contagious and infectious diseases of mink are few. The regions of the body most susceptible to derangement are the intestines and glandular organs, due mainly to local conditions, as bad food, poor quarters, and unsanitary conditions. The following are some of the diseases to which mink are most susceptible.

Pneumonia—Minks are much susceptible to this disease. However, it is a disease which can easily be controlled. The general contributing causes are cold nest boxes with not enough nesting material, poor diet causing the animal to become thin and emaciated. The general symptoms are hard breathing, gasping breaths and sometimes a watery discharge from the nostrils. The animal dies usually within twenty-four hours after taking sick. Upon a post mortem examination the lungs will be found to be dark, discolored, and congested with blood. The mortality of this disease is very high, little can be done except to place the animal in a warm place and feed it nourishing food.

Enteritis—This intestinal disease is generally produced by



ANXIOUS FOR THEIR DINNER

bad food and uncleanness. It generally commences with diarrhoea until the acute stage is reached. The nature of the infection is most generally due to a pathogenic colon bacilli, or in some cases may be caused from a chemical poisoning from the food. The animal loses appetite and grows thin, its fur becomes dull. The manure is dark brown mucous or mucous streaked with red. If streaked with red it indicates the infection in the larger intestine.

The best treatment is to place the animal in new and clean surroundings and change the diet completely, giving it wholesome and clean food such as shredded wheat with scalded milk and eggs, also beef broth. Before feeding the new diet a mild dose of castor oil should be given. This may be occasionally followed up with bismuth sub gal. in one to two grain doses. This chemical acts as an antiseptic wash in the intestines. Care should be taken to keep the disease from spreading to the other pens as certain types of this disease are communicable.

Nephritis—Is a kidney disease to which mink are susceptible. It is due to damp and unclean quarters and poor food. The symptoms are a dull coat, dry nose, nervousness and loss in weight. Post mortem examination will reveal pinkish spots on the kidneys. Parts of the kidneys may have gray and discolored areas. An effective treatment is to place the animal in dry quarters, with a clean, dry nest box. A regular diet should be given of fresh milk, eggs, wholewheat bread, broth and meat.

Although the mink is partly a water animal, too much water and dampness is unhealthy for the animal. In its natural state the mink has a warm, dry nest and an unlimited area to dry itself off by rubbing and rolling on the ground and grass before going into its nest.

Phimosis—This is a disease of the sexual organ in the male. The penis becomes inflamed and extended so that it seems as if it were turned inside out. For treatment first allay the inflammation by bathing the organ in a solution of water and boric acid, then gradually work back the organ to its natural position and apply silver nitrate and vaseline. The animal should also be placed on a special diet.

Flukes—Mink are susceptible to a fluke which invades the lungs and bronchial tubes. A large number of these flukes will

cause suffocation and death to the animal. The history of these parasites have not yet been worked out, but it safely can be said that clean ground and sanitary conditions will prevent any such infection.

Fleas and Lice—Mink are liable to become infected with these parasites more in the winter time than in the summer. When given plenty of water to bathe they keep themselves automatically free from lice or fleas. An effective treatment is to dip the animals. Select a warm day and dip in any good standard dip, then give them plenty of room to run about until dry. Repeat the dip eight to ten days later.

The keeper should be ever watchful for signs of sickness as many of the diseases mentioned can be controlled and prevented if taken in time. When a mink is sick his coat of fur becomes dull and his tail scraggy, his pink nose becomes dark and dry and he assumes a dull and gaunt appearance.

The dens should be cleaned and disinfected once each month. The old nesting material should be taken away and burned, and the nest boxes filled with clean soft dry grass. The manure should be removed from the individual pens once every day. Occasionally fresh dry sand should be scattered over the bottom of each pen. Every spring as soon as minks are separated after mating, pens and yards should be overhauled, cleaned and disinfected. Fresh nesting material should be placed in every den for the comfort of the young that will be born.

Habits of Minks

Mink like foxes have their own peculiar and interesting characteristics. Mink do not possess that cunning and sagacity of a fox. On the other hand they tame readily and become bold and fearless and will crawl all over the keeper without fear.

A mink's vision of sight is limited, they are not able to discern objects beyond forty feet but rely mostly on their keen scent of smell for detecting their prey or enemy.

The habit of hoarding food is stronger in mink than in any other carnivorous animal. Mr. Charles Hallock cites a case that while fishing in Maine he has known a mink to cart off a

dozen large fish into his hole. In captivity the first thing a mink will do when fed a piece of meat, is to quickly carry it into his den and come running back for more, regardless of how hungry or full he may be. I had a mink once that had the habit of carrying into his den all the chips of wood he could find, and packed them in until there was hardly room for himself. This I believe was a perverted food hoarding instinct, as he would do the same with food.

Minks in captivity if handled properly will become very tame. Some allow themselves to be handled without danger. The mink in the accompanying photograph have been turned loose from their individual cages, and are seen making use of their freedom by crawling all over me during feeding time.

Conclusion

Mink raising would go well as a side line to fox farming. In this way better methods and finer strains could gradually be established. There are also thousands of farmers with small farms and ideal sites, who could easily start in a small way, and with intelligent application and patience, build up a successful business.

FURS OF THE FUTURE

From "Fur Trade Review," New York City

There was an exhibit of silver foxes at the Interstate Fair held at Spokane, Wash., early this month. The little animals were the center of attention for thousands of visitors. It is interesting to note that at many of the state fairs held this year specimens of fur-bearing animals have been shown and the great possibilities that lie in fur farming are being constantly pointed out to the farmers of our middle, western and northern states.

The rapid growth, during the past few years, of fur farming is fully realized when it is pointed out that there are over one hundred farms, or individuals, engaged in breeding fur-bearing animals in the United States, not counting fox farms.

Nearly all breeds of the staple fur bearers are being raised in captivity. On some farms several kinds of such animals are being bred. Of skunk breeders there are reported to be eighty-one and next in number come the breeders of raccoon. Both are closely followed by breeders of mink, of whom there are twenty. Muskrats are being raised on ten farms, opossum on nine, marten on seven, caracul on three, fisher on two and ermine on one. Of fox farms there are over four hundred.

These breeders are the pioneers in the field, and yet there are newcomers nearly every week. The Department of Agriculture is co-operating with these fur breeders and has, through the Bureau of Biological Survey, published a series of most valuable handbooks on the care of all kinds of fur-bearing animals. This series is being added to as quickly as new material is gathered by the representatives of the Bureau.

The fur farmer has come to stay. He has come and has succeeded in spite of the oft-repeated statement of fur men and fur trappers that fur animal breeding in captivity just "couldn't be done." There were many, very many, discouraging failures in the beginning, when the animals died through lack of proper food and care. Experience has taught the breeders how to overcome such difficulties. Each succeeding year adds to the accurate knowledge already gained about the habits and needs of the wild fur-bearers when in captivity.

It will be strange, as this knowledge increases, if future generations of fur-bearing animals, raised in captivity, do not possess greater beauty, finer pelts and more uniform coloring and markings than their ancestors who roamed free through the forest, the hills and the plains.

Co-operate with this publication by sending in your subscription now.



LITTER OF FIVE

Raised by Gaffney & Leonard, Petoskey, Mich.

Gaffney & Leonard, owners of the Pioneer Silver Black Farm, Petoskey, Michigan, for ten years by proper selection and handling of foxes have been able to place at their Petoskey ranch a line of foxes that are hard to beat. These men both started in the business of raising foxes in the fall of 1911. Mr. Gaffney had purchased a female for the sum of Fifteen hundred dollars, which he mated with a male fox from the ranch of B. I. Rayner. From this pair, which he had in his own ranch, four pups were raised and from his share of this litter he realized Forty-five hundred dollars. During the following years he gradually increased his business and for the last five years has been manager of four companies, and at present the president of the Petoskey Company.

Mr. Leonard started his ranching experience with two pairs of foxes and now has a ranch of 25 pens on his farm near Summerside, Prince Edward Island, Canada. He is now manager and Secretary-Treasurer of the Petoskey ranch in which they expect to have fifty pairs of foxes the following winter.

If you believe in an American publication for the American fox and fur farmer show your belief by sending in your subscription and your advertising contract.

MINNESOTA LEADS IN FUR FARMING

The first game and fur farming exhibition in the United States was held at the Minnesota State Fair, September 3rd to 10th, inclusive, by the Game and Fish Department in conjunction with several of the established game breeders of the State.

Early in August the State Fair Board offered the department the use of a large building in a prominent location on the grounds. Assistant Commissioner H. J. La Due immediately communicated with all the licensed breeders of wild animals in the state, and receiving a ready response rapidly completed arrangements for housing the animals and birds. Wardens Centerwall, Kane, Klinefelter, August Olson, Schutz and Warner rendered valuable assistance.

The building, being 144 feet long and 66 feet wide, furnished a splendid location for the exhibit. The runs for the animals and birds were commodious, in fact some of the pens were as large as the regular ranch pens. Tanks were set in the floor for waterfowl and beaver and mink. A carload of evergreens was used in decorating the interior. Leafy bowers were built over the pens and trees set upright in the deer and pheasant runs made ideal natural habitat groups.

The Game and Fish Department arranged an attractive display of raw and dressed furs in one booth. The department also exhibited a pen of 100 ring-neck pheasants from the State Game Farm. Mr. Fred Hoeffken of Minneapolis loaned the department a half dozen silver pheasants and these, with two beautiful golden pheasant cocks, furnished a combination of colors in an evergreen setting that will be long remembered by Fair visitors.

Two large center pens ran the full length of the building. The pheasants occupied one and a large flock of wild mallards, owned by Robert Luedtke of Young America, and nine splendid specimens of Canadian geese, owned by J. A. Loffelmacher of Fairfax, occupied the other. The pen was equipped with a big tank of sufficient shallowness to enable the mallards to assume their favorite position while feeding—standing on their nose. The geese exhibited by Otto Kuntz were placed in the rock pond in the Fish Building.

Mr. Carl J. Lenander, Jr., of Minneapolis showed a fine assortment of wild mallards and Canadian geese. Mr. H. J. Jaeger brought a pen of wild geese that attracted a great deal of attention. His display included Canadian and Cackling geese, Blue geese, Snow geese, White-fronted geese and black mallards. Mr. Jaeger has kept wild geese in captivity for several years and has discovered many interesting facts concerning their habits. The Canadian geese and Cackling geese breed readily in captivity. The Blue geese and the White-fronted geese, however, refuse to breed and successful matings of these varieties in captivity have not as yet been recorded in the United States. Snow geese bear the same attitude toward domesticity. However, Mr. Jaeger has a pair of Snow geese which proved to be an exception to the rule. After eight years in captivity they bred and reared young in 1917. This has been repeated several times since that date.

A pair of blue foxes were exhibited by Mr. J. S. Chastek of Glencoe. These interesting foxes were imported from the Chastek fox ranch in Alaska. Mr. Chastek is also utilizing spare land at his farm near Glencoe for black fox farming.

A mother mink with five young owned by Geo. C. and F. W. Hall of Farmington furnished no end of amusement. The young were as lively and playful as kittens and visitors crowded up to their pen to see them disporting in their tank and playing hide and seek in the small pile of driftwood in the center of the enclosure.

Four black bear cubs proved to be the comedians of the show. One pair was the property of Mr. R. F. Jones of Minneapolis and the other belonged to J. M. Stigers of Isle. The

variety of peanuts, candy and popcorn fed them by the visitors kept their little stomachs distended and tight as a drum all day. There were no discernible ill effects, however. Nature instilled in them the hibernating habit and in order to make it possible for them to subsist through the long winter on their store of fat, gave them huge appetites and cast-iron stomachs to stand the strain.

A family of beaver, consisting of a pair of adults and three young, occupied the adjoining pen. The parent beaver were captured by Game Warden August Tabor and for a time were domiciled in his barn, where they gave birth to four kits. Later they were placed in an enclosure at the French River Fish Hatchery where one kit met an accidental death. They were exceedingly tame and gave daily exhibitions of their wood carving ability.

Mr. Ben Robertson, owner of the Robertson Black Fox Ranch on Devil Track Lake, near Grand Marais, brought down a pen of six young foxes. Mr. Robertson is a pioneer fox breeder, having started his ranch several years ago with a litter of black fox pups, captured by himself in the vast wilderness of the Lake Superior north shore country.

On the opposite side of the building Mr. J. A. Loffelmacher of Fairfax had pens containing red fox, raccoon and skunk. Mr. Loffelmacher represented several trapping and fur farming publications, including *The American Fox and Fur Farmer*, as well as a firm making a specialty of fur farming wire. His booth was always crowded and he made numerous sales of animals, wire and fur farming books.

The balance of the space was taken up by the Rest Island Silver Fox Company of Lake City. Mr. Arthur Schleicher, the company's manager, had charge of the exhibit and arranged a very attractive display. One large pen was trimmed with evergreen boughs and several large evergreens set upright in the pen. A buck and a doe Virginia deer occupied this pretty little woodland setting. A pair of raccoon and their four young, in another leafy bower, attracted still more attention.

The next three pens were devoted to specimens of Rest Island's most valuable and important product, black foxes. The company owns the largest black fox farm in the United States and has in captivity over seven hundred registered, pedigreed black foxes. Mr. Schleicher reports the sale of several foxes at the Fair.

Over three hundred thousand people visited the department's exhibit. Thousands of questions were answered by the exhibitors and department employees. Hundreds announced their intention of utilizing waste land and marshes for game and fur farming ventures. Plans for the 1922 exhibit which are being formulated now indicate that the exhibit next year will be even more comprehensive and complete. The department is under obligations to the State Fair Board and takes this opportunity to thank Superintendent Thos. E. Canfield and other officials for the co-operation and aid rendered.

"The fur-bearing animals of Canada in ages longer back than we can trace supplied food and clothing to the Indians, served as a medium of barter among them and finally brought the white man to exchange the furs which the Indians obtained for the various products of the Old World. A leading motive for the exploration and discovery of the new lands was the profit to be derived from the fur trade, and, little by little, as the tide of the whites advanced, the redskins retreated, as also, by partial or complete extermination, did many of the fur-bearing animals, both being continually followed by the spread of civilization and the settlement of the new land."

Subscribe to the American publication for the American breeder.

WHO IS WHO IN THE FOX INDUSTRY

By J. E. SMITH, Secretary

National Fox Breeders Association, Muskegon, Michigan



EDWARD BUYCK

North River, N. Y.

THE above photograph shows Mr. Edward P. Buyck painting out of doors at a temperature of 30 below zero at 10:00 a. m. Mr. Buyck, who operates a fox ranch at North River, N. Y., is a very active member of the National Silver Fox Breeders Association, and a noted landscape artist. He is a Belgian by birth and has been in this country but a few years. A distinct honor came to Mr. Buyck when he was elected a member of the Royal Academy of Belgium. He is a student of Franz Courtens and the late Gaston Latouche of Paris, and is one of the modern school of Flemish landscape painters and his paintings are to be found in many of the large galleries of Europe.

When the war broke out, Mr. Buyck was a dispatch rider in the Belgian army. During one of his trips he was captured by the Germans and relieved of his dispatches. He was put into a guard house where he overheard that he was to be shot. Killing the guard he escaped to the seashore where he boarded a ship with many other refugees. The captain of the ship was in league with the Germans and refused to sail. After a dispute the captain was slain, and Buyck, with the aid of refugees who were seamen, navigated the vessel to a friendly port. He

then made his way to England to recover from serious wounds which earned him an honorable discharge from the army. After a short stay in England he came to America, and was for a time, a guest of his friend, David G. Lithgow, well known as an artist of Indian life.

He had been in this country but a short time when he became actively engaged in war work as a draftsman at the Watervliet, N. Y., Arsenal. He found time to paint a great many recruiting, Red Cross, Y. M. C. A., and enlisting posters. He inherits his artistic ability from his father, who was one of Belgium's best known architects, for some time being connected with the Belgium Government.

In Europe his favorite sports were Polo playing and fox hunting. He had one of the leading packs of hounds in Belgium and France, and raised a number of red foxes in captivity. Occasionally one of these foxes would be turned loose and given chase. His polo playing and fox hunting, along with his military experience, has given him a splendid carriage and he is a horseman of the first rank.

When he came to this country a friend who was in the fox business told him of the financial returns. He gave some consideration to the industry and decided to go into the game. He congratulates himself for this and hopes he can cover his whole 1160 acres with fox pens. He is a great lover of nature and animals and takes personal care of the foxes at his ranch. He says he treats them as human beings and that the results are very satisfactory. He believes in keeping the foxes as tame as possible.

At the present time he is living in the forest of the Adirondacks as a naturalist among the wild. He has volunteered his services to the National Association in the way of making designs for letter heads, show programs and other literature. We are fortunate in having such a man as Mr. Buyck a member of the Association, and we wish him the best of success in his new venture.

Mr. J. T. Gardener, Cass Lake, Minn., is one of the directors of the National Silver Fox Breeders Association and a big booster for the Association.

He is a retired Druggist, having served 42 years at the business in Michigan and Minnesota. He bought his first pair of foxes in Muskegon in 1919 and raised five pups the first year and sold them for \$4,000. This gave him so much confidence in the business that he organized the Cass Lake Silver Fox Company which was capitalized at \$50,000, and started the company with ten pairs in 1920. The company now has twenty mated pairs and four extra males.

Mr. Gardener, who is president of the company, was instrumental in getting a bill passed by the Minnesota State Legislature giving protection to the fox ranchers in the way of theft and trespassing.

The company just moved the foxes to the ranch September 15th and we learn that they arrived in fine shape. A picture of the ranch will appear in one of the coming issues of the magazine.

Subscribe to the "American Fox and Fur Farmer."



J. T. GARDENER

Cass Lake, Minn.

Dr. H. S. Townsend, whose photograph appears above was born in Michigan about fifty-eight years ago. He worked on the farm and taught school, having graduated from the State Normal School at Ypsilanti, Michigan. He is also a graduate of the Medical Department of the University of Michigan. He has practiced medicine in Buffalo for a little over thirty years.

Last March he became interested in the fox business and now owns two pairs of Silver Foxes which are ranched at present on P. E. I. Canada. He also owns a half interest in six pairs and a quarter interest in another six pairs. He expects to have the foxes brought to this country this winter. He is one of the directors of the Great Lakes Silver Fox & Fur Co., whose ranch is at West Falls, N. Y.

Dr. Townsend joined the National Silver Fox Breeders Association just recently and comes with the highest of recommendations. One could hardly question the character and integrity of Dr. Townsend after glancing at the above photograph.

These short sketches with photographs of the members of the National Association are submitted by the secretary of the Association with a view to getting the members better acquainted with each other and their experiences in the fox business.

If you believe in an American publication for the American fox and fur farmer show your belief by sending in your subscription and your advertising contract.



DR. H. S. TOWNSEND

Buffalo, N. Y.

NEWS NOTES OF THE NATIONAL SILVER FOX BREEDERS' ASSOCIATION OF AMERICA

By J. E. SMITH, Secretary

The following have made application for membership in the association since the last circular letter was sent out: J. P. Ribble, Big Rapids, Mich.; W. G. Nieman, Hamburg, Wis.; W. E. Duncanson, South Bend, Ind.; A. F. Reber, Fremont, Mich.; Ray E. Burch, Rockford, Mich.; E. R. Burch, Rockford, Mich.; Dr. D. C. McNabb, Pendleton, Ore.; Ward B. Edwards, Utica, N. Y.; Benj. W. Somers, Hesperia, Mich.; L. C. Venton, Escanaba, Mich.; W. F. Cox, Marquette, Mich.; H. D. Farley, Amarillo, Texas; H. S. Townsend, Buffalo, N. Y.; F. W. Bauer, Muskegon, Mich.

The following have made inquiry as to the source of breeding stock and other information on the business: L. E. Close, 12½ Phillips St., Massena, N. Y.; Millard S. Schwalm, Valley View, Pa.; Tom J. Phillips, 86 E. Randolph St., Chicago, Ill.

The last circular gave an account of the first meeting of the show committee. At the second meeting, held September 16th, it was voted:

1. That the size of the rental booths be 4 x 8 ft., and rented for \$25 for the entire three days.

2. That the three cover pages of the Show Program and premium list be sold at the rate of not less than \$50 each, and the secretary be authorized to sell to the highest bidder.

3. That further classes be provided for Blue, Cross, Red and White Foxes.

It was thought by the committee that the addition of the

above classes would add variety, be a drawing card, and give the public an idea of the difference in the various types of foxes and show why the silvers are so much more valuable.

The members of the Muskegon Chamber of Commerce are taking a keen interest in the Fox Show and will spare no effort in trying to make it a big affair.

A large supply of these Programs will be printed so that they may be sold to the members at cost if they want them to give to prospective customers. The secretary would appreciate it if you would let him know about how many of them you want so that plenty will be ordered from the printer. The show committee is very desirous of having as many photographs of ranches and foxes as they can get, so if you have any good ones please send them in. If you haven't any now it would be well to have some taken and the committee will pay for them.

Support the program by placing an ad in it. If you are a large breeder you should take a page. If you are just so so take a half page. If you own only one or two pairs you should take a quarter page at least, even though you have nothing to sell at the present time. Get your name before the public. Fill out the contract and return with copy. If you have a good picture it would be well to run it in your ad.

The following have made application for the registration of their foxes: Cass Lake Silver Fox Co., Cass Lake, Minn.; Geo. Wadger, Muskegon Heights, Mich.; W. E. Scriver, Muskegon, Mich.; J. P. Topping, Muskegon, Mich.; Garrett Van Allsburg, Muskegon, Mich.; F. W. Riblet, Muskegon, Mich.; Charlotte Silver Fox Co., Charlotte, Mich.; Joe Dykstra, Muskegon, Mich.; W. P. Dinen, Muskegon, Mich.; C. F. Thomas, Grand Rapids, Mich.; Earl Wanless, Viroqua, Wis.; Ray H. Schaf, Athelstane, Wis.; Glen Smith, Buchanan, Mich.; F. D. Barstow, Chittenden, Vermont.

Mr. Barstow has also had the ranch name of "Carmel" registered for the Vermont Silver Fox Co., of which he is vice-president and manager.

The next regular meeting of the association will be held at Muskegon, Wednesday, October 5th at 8:00 p. m. at the New Armory. If you can't come send in your suggestions. Boost the show, the association, and your business.

RAVINE SILVER FOX CO. NEAR NORTH CROGHAN New Company Starts—Capital Stock of \$75,000—Ten Pairs of Foxes

From Boonville, N. Y., Herald

Announcement that a new Silver Black Fox ranch is being organized and located at North Croghan, was received in Boonville with interest. While the capital stock is said to be \$75,000, the company will start with only ten pairs.

This small company, all stock equally participating, has purchased 108 acres of land in the town of Croghan, Lewis County, of W. D. Blinn of Denmark, N. Y., known as the Bellinger farm, which is located about 3 miles east of the North Croghan railroad station and six miles from North Croghan.

This, it is believed, will make an ideal fox ranch, being well watered and having all the needed requirements for the industry. The work of construction of pens and kennels is well under way, under the direction of Manager Elmer Lamb of Carthage.

According to verified statistics approximately 4,849 silver foxes are being bred in the United States according to the Bureau of Biological Survey, U. S. Department of Agriculture from 215 fox ranches, representing a value in animals and equipment of \$4,270,830.

The corporation has purchased ten pairs of standard bred, pedigreed silver black foxes that are registered in the Fox Breeders' Association of Prince Edward Island, Canada.

These ten pairs of foxes and their offspring during 1921 breeding season afford the foundation upon which the Ravine Silver Fox Corporation is organized.

The purpose of the corporation is to build a modern ranch to care for these ten pairs of foxes and their young, then to develop the raising of foxes for breeding purposes and to pelt for market.

There are at present, it is claimed, 18 fox ranches in New York state, numbering 510 foxes with a valuation of animals and equipment of \$733,205.

The corporation is capitalized at \$75,000, with a present issue of \$60,000.

Par value of shares \$5.00 all common stock.

The balance of \$15,000 to be left in the treasury of the company for future expansion.

The following is a list of the corporation officers and directors:

President, Pearson W. Jackson, Utica, formerly with the Tempas's Motor Corporation of Cleveland, Ohio.

Vice-president, W. D. Blinn, a retired farmer of Denmark, New York.

Secretary, Corwin T. Jewell, Superintendent of the St. Regis Paper Mills, Herrings, N. Y.

Directors, O. H. Morcy of the N. Y. General Agent Niagara Life Insurance Company of Utica; Dr. Nicholas A. Sullo, Utica; J. R. Meredith, merchant, Holland Patent; Walter Stacey, Grange fire insurance agent of Natural Bridge; Elmer Lamb, Carthage, formerly of Scranton, Pa.

It is the intention of the corporation to rush the work of construction that all equipment may be in readiness on the arrival of the fox family this fall, where they will be under the direct supervision of Manager Elmer Lamb, who has had experience along this line.

NO FURS AVAILABLE FROM SIBERIA

From "Fur Trade Review," New York City

The rumors that large quantities of Russian-Siberian furs will soon be available in the market are refuted by Carl Brenner, who has just returned from the Far East. Having been on the ground for eighteen months, and in close contact with Russian affairs, he has come to the conclusion that there is no hope of these rumors being realized for some time to come. Conditions in Russia are so chaotic and the transport system so broken down—what there is of it is clogged with supplies for the famine sufferers—that shipping furs out on single-track roads in Siberia is entirely out of the question at present.

Occasional shipments do get through, but they are very rare. The merchandise is practically smuggled out of Russia, probably in collusion with Russian Government officials, there being no regular lines of communication, as the local Government does not permit actual business transactions with foreigners. As a consequence, we find a scarcity of Russian furs in the American market.

Carl Brenner's observations lead him to conclude that the fur business in America will have to depend to a great extent upon domestic furs. He believes that this accounts for the peculiar condition in the local fur market to-day—that there is no great demand for furs; nevertheless, there is a marked scarcity of merchandise in the local skin markets. There is only a limited amount of high-grade furs here at present. Should the season for retailers and manufacturers be only fairly good, there is bound to be a shortage of desirable raw skins. Conditions could not possibly be otherwise, as in previous years there has always been a liberal supply of foreign furs in the American market.

A cable from Fred Brenner, who is in the Far East, says that good furs there are bringing higher prices there than could be realized in the local market here.

A RUSSIAN EXPERT DESCRIBED KARAKUL SHEEP GROWING

By M. S. KARPOV

Professor of Animal Breeding in the Agricultural Institute of Moscow, Russia

THE hides of the lambs of the Karakul sheep, on account of their special qualities hold an entirely exclusive place in the world's fur market. The Karakul seems to be the only fur which is common among all civilized nations, and besides the only fur which is worn by persons of both sexes and of all classes, old and young. On the strength of its qualities, its general form, beauty and desirability, together with its comparative cheapness, the Karakul fur has almost become one of man's necessities of life, and for this reason fashions cannot fluctuate much with reference to Karakul in the world's markets. These world-renowned furs are the almost exclusive gift of one comparatively small oasis in Turkestan. Up to date the only place in the world that has produced these "Black Rose" furs has been the Province of Bokhara, and the chief marketplace of the furs, the market of Nym Novgorod.

With regard to the present general condition of the Karakul industry, it may be remarked that in later years there has been noticed in general a considerable increase of interest in this branch of the fur industry, occasioned by an increased demand for furs and similar material.

The increased demand caused an excessive increase in the price, but did not cause the introduction of any measures looking to the preservation, encouragement and further extension in Asia and Southern Russia of this so profitable breed of sheep. Thus the prices of Karakul fur during the last fifteen years have risen 140 per cent., and thoroughbred sheep and rams which formerly were worth \$200 to \$500, judging by given estimates, are now sold for from \$500 to \$1,200.

It is important to note that the West, which but quite recently knew of the Karakul breed of sheep, chiefly through rare photographs and the Zoological gardens, has of late equipped whole expeditions on account of these precious animals, in order to study them in their home and by themselves, endeavoring to introduce the Karakul sheep industry in their own territory and finally established herds of Karakul sheep even in Africa and America.

In the fur markets of Old Bokhara and Karakul, where formerly western buyers were never seen, one now meets Europeans among their population.

The increase of interest in the Karakul sheep industry may also be expected in the future, both in general on account of the above-mentioned exquisite qualities of the Karakul sheep skins themselves, and, on the other hand, on account of the disappearance of the wilderness and destruction by men of wild animals and the strong advance in price of their furs; and furthermore, on account of the increase of population.

The increased interest of the West in the Karakul sheep industry in general, at the same time as it is favorable to the province of Bokhara, may become injurious to the future interests of Russia because of the seeking of new homes for the Karakul sheep in the African colonies, and in America will perhaps under favorable circumstances give rise in the future to a competition in the Karakul business, and the purchase of goods by foreigners directly from the markets of Bokhara which has been noticed during the last year may destroy the Russian Karakul market at Nym Novgorod. These future menaces and the appearance of a whole series of reasons of economic and industrial character speak imperatively of the necessity for

Russia to join the series of measures looking to the prevention of the fall of its Karakul market, as well as to the preservation and great development of this branch of live-stock culture within its territory.

The Karakul breed of sheep must on the strength of a whole series of data be considered one of the oldest. Such an authority as Duerst, in his late interesting work, after having given a detailed account of the researches in the strata (in Turkestan), beginning with the year 8250 B. C., sees in what he believes to be the Maimen breed the remains of a still older excavated breed, "Anan," named after the city of Anan. But without taking into consideration this ancient origin of the Karakul, in no description of any breed of sheep does one feel more uncertainty than in the description of the exterior of the Karakul sheep—especially after reading some recent newspaper articles. Authors often agreeing in the general description of these breeds, not seldom disagreeing in the description of the different parts of the animal; e. g., in talking about the ears some regard them as long and slender, and at the same time short and thick. The same is met with in regard to the length of the tail, the color of the hair, white spots, etc. From what has been said it is plain that the Karakul sheep do not appear to us, among breeds such as for instance the English and others, as a strongly developed classical breed with a very precise standard. The Karakul sheep were not developed as a classical breed; the owner does not even now raise this breed in its purity.

Concerning this state of sheep-raising among the inhabitants of Bokhara, I had occasion to convince myself while traveling in the spring of 1910 through all the more important regions and points where the Karakul sheep existed in the Bokhara country; although in this manner becoming acquainted over a large territory with breeders of Karakul and a good many other breeds of sheep, I never had the good fortune to find an ideal flock of pure Karakul. A flock of these often appear as a motley picture of distinct groups of Karakul, Kirgis, Kowdruch, Afghan, etc., with Karakul rams in the majority. In general, on account of the careless and senseless management of sheep-raising by these people, it is of course difficult to expect any reliable work on stock-raising whatsoever.

In my three months' journeying in the state of Bokhara, I have had occasion to acquaint myself with the principal regions devoted to sheep culture. I had occasion to notice a very great number of herds, beginning with the traditional Karakul oases and finishing with the herds of almost unknown places, whither as yet no one, as far as is known in literature and from reports of the inhabitants, had ever come from Russia in Europe to make purchases—the steppes of Ljon Bos, Sarche, and others. Nowhere did the herds of Karakul sheep give the impression of being perfectly pure. Generally Karakul sheep of different strains are pastured together, and with these Kurdish, Afghan, and, finally, hybrids of Karakul and the latter. If we consider the Karakul sheep by themselves, in uncultured and non-uniform groups of animals with a considerable per cent. of hybrids of various generations, the eye is not attracted by any strongly marked types of these breeds. Nevertheless, certain diversified characteristics do not in this breed appear absolutely constant,

and often as if faded, commonly having in different animals transitory forms, so that separate characteristic groups of the Karakul sheep are not, in external appearance, absolutely marked. Even local herd-owners do not notice this divergence of types, and the attempt to get help in this discernment of types from the more intelligent local cattle-men, generally has resulted in nothing.

Stables for the housing of the sheep are not common in Bokhara, because large structures of this kind are not available on account of the roving habits of the herds; and the local population moreover are prejudiced against the keeping of sheep in stables. Thus one man contended that this kind of keeping was not in vogue, and his personal experience with twenty breeding rams did not favor this method.

Cutting short our remarks about the Karakul sheep themselves, I will dwell in detail on the purchasing and export of Karakules and hides from Bokhara. As to general appearance before the purchase of the sheep in Bokhara steppes, we remark the comparative reluctance of the people to sell breeding animals. This, no doubt, is due in large measure to the recent great rise in value of hides. First, one has to ascertain if the owner of the herd is willing to sell any animals at all. Then, if the reply is in the affirmative, further agreement must be made about the number, as the province of the owner often goes no farther than one or two sheep. Afterward comes the selection, the capture, inspection, and dickering over the price. As a matter of fact, one may see a long and tiresome horseback ride into the wilderness result in absolutely nothing. One may hear the declaration of the owner either that he will not sell at all, or if he agrees to sell any it is only at an unreasonable price. The formerly practiced compulsory selling at the instance of the governor, I will not describe, as it has passed into history. On top of everything else, purchases in the wilderness are rendered difficult by the fact that often only such rams are left with the herd as are entirely unserviceable.

As a rule the well-to-do owners of the very best and purest herds are not accustomed to sell any of their herd, not to mention the fact that these owners are not compelled to such sale, effecting the same only by means of large quantities of hides; but even on ethical grounds this kind of business does not find favor with them. The rich do not want people to think that because they sell they have to do so. If the would-be purchaser insists on buying, he may get an answer like this: "If you want them for nothing, take them, but I will not sell;" or still oftener, "If my neighbor sells, I will sell also." The owners of the medium-sized and small herds may agree to sell, but do not always sell the best animals on which the purchaser has fixed his choice, but offer the poorer ones, and even those only in limited numbers. Otherwise in such herds the selection of a more or less considerable number of fine specimens is also comparatively limited. As regards the sale itself, the natives cannot always be regarded as gentlemen. Having bought, of course after a voluntary agreement, one sometimes has no guarantee that the seller after having sold an animal will receive the money and pay the export duty. Even after being paid he may repudiate the sale and return the money. This manner of selling to tanners seems especially peculiar, because it is practiced by a people by nature adapted to commerce, who make their cities a series of bazaars, and from whom one might expect some business sense. The present prices of the Karakul sheep in Bokhara are high. They rose quickly. The increased demand for hides, the considerable rise in their value, and the consequent growth of the income from Karakul-raising, as well as in part the increased demand for breeding animals in Russia and the West, are the circumstances which have created a great increase in the price of Karakul breeds. On the whole, the importation of Karakul sheep into European countries does not, as has been represented, carry with

it any serious competition in the production of high-grade skins. These countries cannot furnish the world's market with a large quantity either of high-grade or medium skins for economic and especially climatic reasons.

But the attempts of Americans and Germans to find a new home for these sheep in America or Africa may, if they succeed, give rise to a strong competition and be detrimental to the sheep industry of Bokhara.

I have in my possession a list of sales of Karakul hides, prepared by a firm in Nym Novgorod, which gives a view of the rise in price of this article during the last fifteen years. I will give only average prices for periods of time, with the reminder that the purchases included hundreds of thousands of skins valued at millions of rubles.

On the groundwork of these facts, the average price of skins in 1895 was 3r. 9lk.; in 1902, 6r. 63k.; in 1909, 8r. 70k. It is apparent that in the eight years to 1902 the prices rose 70 per cent., and in the same length of time from 1902 to 1909 the prices rose 31 per cent. more. Thus during the entire fifteen years the increase in price amounts to 122.5 per cent. If we add that during the last years, in comparison with 1909, prices have risen 25 to 30 per cent., this table of rising prices speaks even more plainly. In this way prices have risen 180 per cent. Good hides of a special sort called "caracoolthca" are generally sold somewhat higher than the first grade of common skins. "Caracooltcher" (also "takeer") is a name given to the skins of stillborn lambs. Skins of lambs taken from dead or butchered sheep, often a very costly kind of Karakul, are called "harami." The quantity of caracoolthca varies in the Bokhara market with each year. They are most abundant after severe winters, which cause numerous abortions.

Among the wholesale exporters who do a big business in the Karakul market of Nijni, in addition to the above-named Duerst, who sends to Russia directly across the border annually about 100,000 Karakules, may be mentioned the Saits (natives) Arabovjch Bros., who ship as many as 300,000 boydooloo; Kasim Hadjaev, who also sells about 300,000; his brother, Latif Hadjaev, who ships about 100,000; Koorambash Azizoo, whose business has lately shrunk to 50,000; Mookoomboev, 100,000; and the Enus of Bokhara, who ships annually 140,000 to 300,000 hides.

The history of the Pottawa Agriculture College alone, which between 1888 and 1910 organized eight expeditions for Karakul sheep and has already acquired about two and a half thousand of these animals, furnishes much that is instructive in this regard. For both these facts of former expeditions and my personal experiences of 1910 show very plainly that purchases in Bokhara then and now are connected with a great number of obstacles, difficult to overcome. On account of the general disinclination on the part of the large flock-owners to sell their sheep, there remain available only the minor proprietors with a small number of animals for sale and these not always of the first grade).

An industry of growing importance in the Maritime Provinces of Canada, says a recent Consular report, is the raising of fur-bearing animals particularly silver foxes. This industry receives special attention in the Province of Prince Edward Island, and to a less degree in Nova Scotia and New Brunswick. While much lower prices for silver fox pelts prevailed during the year, the quantity exported was also considerably less than in 1919, with a corresponding decrease in aggregate value. During 1920 live foxes in considerable numbers were exported to the United States, as well as to Norway and Japan. The exports of fox furs to the United States from Prince Edward Island for 1920 numbered a little less than 1,000 skins, valued at \$290,316, as compared with 1,529 skins in 1919, valued at \$327,327.



CAMP ON INSULA LAKE—SUPERIOR NATIONAL FOREST

MORE ABOUT SKUNKS

Inclosures and Dens

The skunk inclosure should occupy a well-drained, sandy hillside, partly shaded by trees, and partly open land, with grasses. An acre will afford room for about 50 adult skunks. It is desirable, but not necessary, to have running water inside the inclosure. A 3-foot fence made of poultry netting and having an overhanging barrier at the top is sufficient to confine the animals. The barrier is needed, since the netting might serve as a ladder over which the skunks could climb. The netting should be of 1-inch mesh, as young skunks have been known to escape through meshes of $1\frac{1}{2}$ inches. The wire should be of No. 16 gauge.

This low fence, however, is not sufficient to keep out dogs or other intruders, unless the overhang is very wide and extends on both sides. Many breeders prefer a tight fence of boards or sheet iron or even a stone wall. A 4-foot fence of stout planks supplemented by a 3-foot netting or several strands of barbed wire above is recommended, as it may be made proof against the entrance of rats, and no overhang will be needed.

To prevent the skunks from digging out under the fence it should penetrate the ground to a depth of two or three feet. A layer of flat stones along the bottom of the trench on the inside is an additional precaution. Turning the netting in at the bottom is still another method of preventing escape. Unless the soil is loose skunks do little digging, but they have been known to dig under three-foot walls.

Strong posts of good lumber are needed for outside fencing. They should be set at intervals of about ten feet and should be well braced at corners. The overhang may be a wide horizontal board nailed to crosspieces at the top of the posts, or it may be a strip of wire netting, sheet iron, or sheet tin a foot wide attached to wooden brackets or crossbars on the posts.

The skunk inclosure should be divided into smaller yards, the division fences being three or four feet high and made of netting ($1\frac{1}{2}$ -inch mesh) or of sheet iron. The compartments are convenient to separate different classes of animals, as males or skunks just weaned. Besides the general inclosure and its main divisions a separate breeding pen for each female should

be provided. As these are to be used for only two or three months at a time, cheap boxes with wooden floors will serve every purpose, but they must be dry inside. It will be advantageous to have each breeding den placed within a small run where the young skunks can exercise after they are large enough to leave the nest. This arrangement should entirely remove the danger of cannibalism in the skunk yard.

The general skunk inclosure and its main subdivisions should be provided with a sufficient number of dens to prevent overcrowding the animals. While in winter a number of skunks will den up together, they should not be compelled to do so at other times. The dens may consist of hollow logs, trenches covered with boards and earth, or artificial burrows bored in a sloping bank by means of a post auger. The skunks will enlarge these burrows to suit their needs. The chief requirement for all dens is that they shall be dry inside. Contact with the soil, unless it is wet, improves the fur.

Foods and Feeding

Skunks in captivity eat a great variety of foods, including meat, fish, insects, bread, cooked and even raw vegetables, and ripe fruits. Table scraps will keep the animals in good condition, but occasional meals wholly of raw meat are desirable. The meat should not be putrid nor very salty. More of it should be fed in the spring, for it is lack of meat diet that causes old skunks to eat the young.

Food for a large skunk ranch may often be procured from hotels or restaurants, when usually it will cost nothing but the labor of removing it. Arrangements may also be made with butchers for obtaining waste meat at low cost. If the ranch is favorably located, a supplemental diet of insects will be naturally available within the inclosure.

Cakes and mush made from cornmeal and bits of meat are excellent foods for skunks. If fresh milk is available, it may be made an important item in the diet. Cooked green corn and hominy also are recommended.

No more food should be given than will be eaten clean during the night. It is a mistake to place a dead animal inside the inclosure to provide food for a long time, or to give the animals occasionally a large supply of offal from a slaughterhouse and expect them to thrive and produce fine fur. But little more than the amount of food required for a cat will supply the wants of a skunk. The animals should be fed once or twice a day; if fed but once, it should be in the evening. Females with young should always be fed twice a day. Good fresh

drinking water should be regularly provided, and vessels used for food or water should be kept clean.

Breeding

While skunks usually breed but once a year in captivity, occasionally a second litter is produced. One male should be kept for five to eight females. The mating season is in February or early March. At this time it is best to keep the females and a single male in one run together. If two males are in the same small run they are likely to fight. The period of gestation is about nine weeks, the young coming in May. Before the young are born the females should be placed in separate breeding pens, which, as previously explained, may be a small run containing a den or nest box provided with nesting materials.

The young at first are blind and almost naked, but they grow rapidly and are weaned when about two months old. They should then be placed in a run set aside for young skunks. They are mature and have prime fur in December.

It is a fact recognized by most fur buyers that skunks raised in captivity usually have poor fur as compared with that produced by the wild animals. This is the result of keeping the animals in small pens or inclosures. If those intended for fur are turned into a large inclosure early in September and kept where they have ample exercise and can find some of their natural insect food, by the end of the year they develop as fine fur as is produced by wild skunks in the same locality.

About the end of this month breeding stock should be selected for the next season. Only good-sized dark skunks should be kept, the broad-striped and rusty-colored ones being killed for their fur or set at liberty. As far as possible the males kept for breeding should be black or "star" skunks. Careful selection year by year will result in a better grade of fur. According to the experience of several, it is possible in three or four generations to secure a strain of skunks the furs of which will all grade No. 1.

Kept in pens secure from the intrusion of dogs and strangers, skunks will not be a source of annoyance to the neighborhood. The writer has visited a number of skunk ranches where no odor could be detected except inside the yards, and it was scarcely perceptible there. The animals soon become very tame and the keeper may handle them with impunity.

To transfer them from one run or pen to another, he lifts them by the tail, grasping this appendage by the heavy part rather than near the tip. However, as the animals are easily driven from place to place, they may be transferred without being handled. While it is not necessary to remove the scent sacs of skunks kept for fur, this is preferable if they are to be kept as household pets or as rat destroyers. Without the scent sacs they are far superior to cats as mousers.

The operation of removing the glands is attended with considerable danger to mature skunks, but it may safely be performed on the young. The best time is when they are from four to five weeks old, as they should not be disturbed in the nests earlier. To remove the glands a short incision on each side through the skin and enveloping muscle is necessary. This exposes the round hard gland and the duct. Care should be taken not to cut the duct or other organs. When exposed, a clamping forceps should be placed over the duct close up to the gland. The gland is then cut out and the duct severed just beyond the clamp. The gland with clamp attached is then lifted out. No anesthetic need be used for this operation on a young skunk, but the older the animal the more difficult it will be because of the larger glands. In mature animals the sacs are nearly three-fourths inch in diameter.

During the operation the skunk is held between the knees of the operator by means of a gunny sack wrapped about its body and feet. Of course, an assistant is needed. The wounds should be brushed with a weak solution of carbolic acid and

need no other dressing.

In his *Mammals of the Adirondacks*, Dr. C. Hart Merriam describes a less severe operation. It consists of cutting so as to expose a section of the duct leading from the gland and snipping out a short piece of it. In healing, the duct is permanently closed and the animal is powerless to use its musk.

Obtaining Skunks for Breeding

As skunks inhabit most parts of the United States, they may usually be obtained in the neighborhood in which it is desired to breed them. The best method is to dig the young out of dens in summer. In States providing a close season for skunks this could not be done without a permit from the authorities. If such permits are not granted, it would be necessary to capture adult animals in the open season. The assistance of local trappers might be helpful in obtaining stock. A box trap is best for capturing skunks alive. It is made like an ordinary rabbit trap and baited with a freshly killed mouse, a piece of meat, or a chicken head. When a skunk is caught, it may be carried to the inclosure before removal from the trap.

Skunks for breeding may be bought from trappers, dealers in wild animals, or other breeders. In some places express companies refuse to accept live skunks for shipment. However, there is no danger that the animals will use their scent if the box is dark inside and not subjected to rough handling.

Handling the Fur

In order that the breeder may realize the best prices for his product he must be acquainted with proper methods of handling and marketing the pelts. For a time his surplus stock will command higher prices for breeding purposes than he could obtain for the skins, especially if the skunks are "deodorized," so that there is no difficulty in shipping them.

The best method of killing domesticated skunks for their fur is by suffocation. A tight wooden box large enough to hold several skunks and having a close-fitting door (padded if necessary) should be used. The animals may be driven into the box singly or several at a time. After the door is closed, a small quantity of carbon bisulphide or chloroform should be poured on a bunch of cotton and this introduced into the box through a hole in the top. The hole should be immediately corked or otherwise tightly closed. The amount of liquid needed will depend on the size of the box and the number of skunks. Two spoonfuls of either liquid is enough for one skunk in a small box, and not much more is required for several animals unless there is much extra space in the box. The animals die quickly and without struggle.

If illuminating gas is available it may be used instead of a volatile liquid. A rubber hose carrying the gas may be inserted through the hole in the box. The space about the tube may be plugged with cotton.

Skunk skins should be "cased" for market. The following directions for skinning should be observed:

Begin with the middle of the hind foot and with a sharp knife slit up the rear edge of the leg to the under side of the tail, being careful not to cut into the scent glands. Then cut the opposite leg in the same manner. No other cuts in the body of the animal are necessary. Cut around the heel of the feet and turn the skin back over the body. Strip the skin from the tail bone with the help of a split stick grasped in the hand while the thumb presses firmly against the back of the animal just above the tail. Continue to turn the skin back over the body, using the knife only when necessary to cut ligaments. Care should always be taken to cut around the nose, mouth, and eyes to avoid tearing the skin.

Some trappers slit the tail to remove the bone. If the bone has been pulled out, the tip of the tail should be slit for about an inch to admit air, or a little salt or alum may be pushed

down the extreme tip.

The skin is left with the fur side turned in and dried on a stretcher made of a thin board sharpened to a point. If the tail has been split open, the board should be long enough to permit the tail to be spread out and tacked fast. Several tacks are also needed to hold the rear end of the skin in good shape while drying.

Stretchers made of heavy galvanized wire have many advantages over wooden ones and are now extensively used by trappers.

After the skin is on the stretcher all fat and flesh adhering to the pelt should be scraped off, and the drying should be done in the shade of a shed or tent, where the air circulates freely—never by a fire nor in the sun. When thoroughly dry, it should be removed from the stretcher, when it is ready for market.

Summary

Skunks are among the most useful of the native mammals and are most efficient helps to the farmer and orchardist in their warfare against insect and rodent pests.

Occasionally an individual skunk learns to prey upon poultry, and if the evidences of its depredations are unmistakable the animal should be destroyed. This may easily be done either by trap or poison.

As a source of fur, skunks are an important asset to the country. They bring to the trappers of the United States about \$3,000,000 annually.

In view of their usefulness and fur value these animals should be protected everywhere by a close season of at least nine months, but the right of farmers to destroy predatory skunks should be reserved.

The propagation of skunks for their fur promises to develop into an important industry. It is at least a matter of sufficient importance to warrant the most careful investigation, and experiments in breeding the animals should be generally encouraged.

The Marathon Silver Black Fox Ranch of Marathon, Wis., advise us that they now have seventy-five foxes on their ranch and the increase this Spring was wonderful. They report all foxes in splendid condition.

Subscribe to the "American Fox and Fur Farmer."

NEW YORK FUR AUCTION SALES.

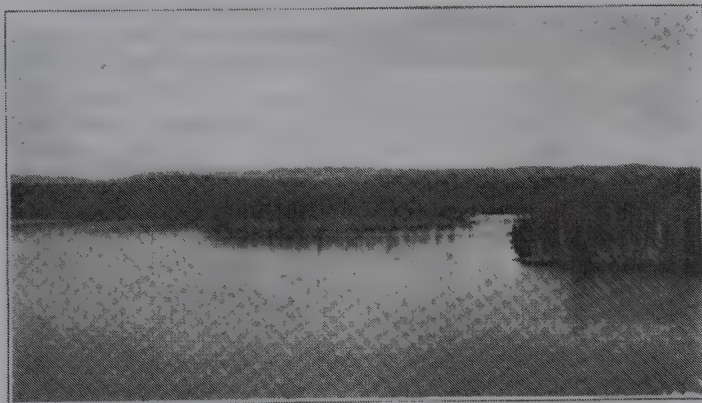
Announce the following comparison of prices realized at its sale held September 19th and 20th as compared with the April, 1921, Sale.

Fisher, 20 per cent. higher; Stone Marten, 15 per cent. higher; Baum Marten, 15 per cent. higher; Otter, Northern, 20 per cent. higher; Otter, Southern, 40 per cent. higher; Lynx, 15 per cent. higher; Ermine, American, 20 per cent. higher; Ermine, Russian, 10 per cent. higher; Mole, no change; Muskrat, Brown, 30 per cent. higher; Muskrat, Southern, 50 per cent. higher; Muskrat, Black, 10 per cent. higher; Badger, 15 per cent. lower; Grey Fox, 15 per cent. higher; White Fox, 20 per cent. higher; Cross Fox, 30 per cent. higher; Silver Fox, Black, no change; Silver Fox, Fresh, clear skins, 30 per cent. higher; Blue Fox, 25 per cent. higher; Skunk, Eastern, 30 per cent. higher; Skunk, Northern, 25 per cent. higher; Skunk, Southwestern, 30 per cent. higher.

The Vermont Silver Fox Co., Inc., of Chittenden, Vt., exhibited at the Rutland County Fair several pairs of their finest silver foxes. The Fair management gave them a building expressly for that purpose and did all in their power to make the showing a success. It is the hopes of The Vermont Silver Fox Co., in conjunction with the Fair management, to get several ranchers to show their foxes next year, and to offer premiums and prize money for the same. No doubt such publicity will ultimately benefit all concerned, as great interest was taken in the exhibit this year by the public.

The Clover-Froding Silver Black Fox Co. of this city advises us that their ranch is located just outside the Twin Cities. They have at present twenty-five pens, 60 ft. long and 20 ft. wide, arranged in a circle, all with latest model equipment and stocked with the finest quality silver black foxes.

The Borestone Mt. Fox Ranch of Onawa, Maine, advises us that they have some remarkably fine pups this year; quite the best they have ever had. They report a litter of nine, two of eight, and quite a few of seven, six and five. The pups are furring out normally this year, a process which is preferable.



CORNER OF SEAGULL LAKE

QUESTIONS AND ANSWERS

This Department is open to our readers for the asking and answering of any questions connected directly or indirectly with fox and fur farming. It is not the intention of the Editor to answer these questions from the office of the publication, but rather to allow our readers to answer them from their wide and practical experience in the industry. Answers sent in care of the publication will be promptly forwarded to the one making inquiry.

Q. (1) Is it necessary to have a small stream running through the marsh where muskrats are raised or will a ditch answer the purpose or a small pond in the center?

(2) How many rats can be raised on one acre with success?

A. (1) A ditch will serve as well. A sweet-water pond would be all right. Muskrats live in alkali water, not too strong—much stronger than humans can drink, however, as witness their salt water marshes along ocean coasts. Muskrats are probably the most successfully raised furs to date, and you could probably make your bread and butter from them easier than from any other fur, having found a good marsh.

(2) Number raised depends on food. Under natural conditions, marshes yield from ten to a hundred per acre, annually, and if you raised turnips, or other food for them, the number is limited only by the burrows and houses they could occupy. Supt. of Public Documents, Washington, D. C., will send you muskrat raising pamphlet for a nickel, I believe.

Q. 1. What besides wild rice can be sown in a pond for muskrats to feed on?

2. What is the general diet of skunks and will they eat rutabagas and turnips?

3. Can males and females den together from weaning to breeding time?

A. 1. They eat roots, bulbs, mussels, etc. You could sow several kinds of water plants. Get Department of Agriculture, Washington, D. C. Bulletin on subject.

2. Skunks eat a great variety of fruit, vegetables, meats, etc. They sometimes eat turnips, especially cooked. Ask above for skunk bulletins.

3. Males are apt to kill the young till nearly full grown. And some are ugly and morose. But usually, safe to leave together.

Q. 1. Will you please inform me as to the best place in the New York Adirondack Mountains for fox trapping?

2. Are fur-bearers plentiful there?

A. 1. Red foxes are found throughout the Adirondack region. They are not particularly plentiful in any one locality, but are nearly equally distributed. Big, green timber foxes are found back in the woods, and are sly, usually being poisoned. Few know how to trap them. The clearing foxes are smaller and are caught in sand hills, pastures, etc., by skilled trappers. Eastern Lewis County, Southern Essex county, (all through the mountains), Hamilton county, Warren county, all have foxes. But one doesn't make big wages capturing them.

2. Not very plentiful. Trappers cover the whole region. They make from \$100 to \$800 a season gross, and not much net over expenses. During high prices, some trappers made pretty good money. It depends on the trapper whether trapping pays or not. I would say furs are scarce in the Adirondacks, because of over-trapping.

A FULL FURRED FOX IN MID-SUMMER

From "Fur Trade Review," New York City

We recently had the pleasure of visiting James S. Hanson at his farm, near Rockville Centre, L. I., where Mr. Hanson is conducting some very interesting experiments in the breeding of silver foxes. We believe that the small group of foxes now at Mr. Hanson's Long Island farm are the only foxes of their kind on Long Island.

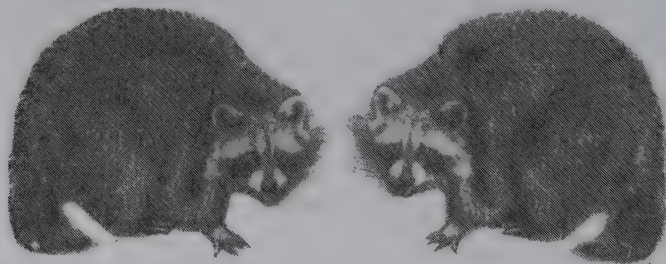
Mr. Hanson is well known in the fur trade and is one of the most successful breeders of black and silver foxes in America. He has extensive fox ranches in New Hampshire and is just now busy establishing a new fox ranch at Glenham, N. Y., which village is at the foot of Mount Beacon, about sixty miles from New York City. Mr. Hanson expects to have one of the finest herd of silver foxes in America at the Mount Beacon ranch this Fall. He recently transported a number of the foxes to this point by automobile from his New Hampshire ranch, and, incidentally, covered the distance in about six hours' running time.

At his Rockville Centre farm Mr. Hanson showed us a rarity. It was a young silver fox with a full prime coat of fur in mid-August. It was the first time that we had even heard of such a freak, much more seen one. On being asked for an explanation of such an oddity Mr. Hanson stated that it was brought about by careful experimentation, and while it meant nothing in a commercial way, still it did demonstrate what could be accomplished by care, observation and the scientific management of the foxes.

It is only on a ranch that foxes, and other fur-bearers for that matter, can receive the attention that produces perfect animals and perfect pelts. How much mere man has improved on Dame Nature in her care and propagation of animals is being demonstrated every day. Now that certain fur-bearing animals are threatened with extinction—the kind that cannot resist or tolerate the invasion of their domain by civilization—man steps in and provides that protection, isolation and food supply which is essential to their existence and propagation.

In discussing the future of the fur farming industry Mr. Hanson said:

"The raising of silver foxes is only a forerunner to the raising of the highest type of fur-bearing animals. So important have the study of wild life and the breeding of fur-bearing animals in captivity become that the United States Government is now conducting an experimental fur farm at Keensville, N. Y., and has successfully raised marten as well as foxes. Such species of the fur-bearing animals as skunk, red fox, prairie wolves, etc., which follow civilization, or rather farm development, will always be in abundance in the wild state. Such species as marten, fisher, mink, beaver and muskrat, how-



A CONGENIAL PAIR

ever, although protected by law, are getting fewer and fewer every year. Enclosed preserves and ranches will supply the future demands. The ranch-bred silver fox is the superior in pelt quality to the fast-disappearing wild silver fox; the principal reason for this superiority is the same as is found in horses or cattle. The ranch-bred fox is raised along scientific lines and laws, while the mating of silver foxes in the wild is indiscriminate. A really choice wild silver fox pelt is really an incident. The fact that I could show you a full-furred animal in August is proof that the science of breeding in captivity is conquering Nature and her laws."

This animal, in spite of its full coat in mid-Summer, was perfectly healthy and early in September it was found that underneath the full coat a new and thicker coat was rapidly developing and will probably take the place of the old coat before the cold weather arrives.

Subscribe to the "American Fox and Fur Farmer."

CORRESPONDENCE

Cazenovia, N. Y., September 19, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

The August issue of the "American Fox and Fur Farmer" arrived and certainly has a pleasing appearance and more pleasing interior.

Cordially,

F. E. BRIMMER

Portland, Maine, September 9, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

We are pleased indeed to receive your second issue of the "American Fox and Fur Farmer" and congratulate you on the appearance of the same, together with the number of fine articles which are contained therein. We are enclosing our check for a year's subscription and we wish you the best of success in your undertaking.

Yours very truly,

FIDELITY SILVER BLACK FOX COMPANY

By J. S. Sawtelle, Manager.

Portland, Maine, September 9, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

We believe that the raising of high grade fur-bearing animals is going to develop in wonderful strides in the coming years and we think that the silver fox, with his wonderful coat, is always going to stand high in the estimation of the beautiful women who like to wear the furs, consequently the price must keep up, and we think the more publicity you give the business and the more honest manner in which ranches can conduct their business and deal with the public, is going to be a means of inducing others in entering into it and succeeding in the same.

Yours very truly,

FIDELITY SILVER BLACK FOX COMPANY

By J. S. Sawtelle, Manager.

St. Paul, Minn., September 26, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

Enclosed please find our check for subscription to your splendid magazine. Judging from your August publication it spells Success. We believe your magazine will be of great aid in effecting co-operation and unity of standard among our American fox breeders.

Very truly yours,

CLOVER-FRODIN SILVER BLACK FOX CO.

Per B. J. Frodin.

Lake City, Minn., October 6, 1921.

American Fox and Fur Farmer

Utica, New York

Dear Sirs:—

I wish to compliment you on your publication and wish you the best of success for the future. Please find enclosed check for \$3.00 for one year's subscription.

Yours respectfully,

L. BLAKE.

Reading, Pa., September 16, 1921.

American Fox and Fur Farmer

Utica, New York

Dear Sirs:—

Your publication is needed by everyone raising foxes and everyone considering taking up this industry in the near future. Your publication is new, as I understand it, but from what I read in the July and August issues I surely was impressed, and the writer certainly feels you are deserving of praise in the whole get-up of your magazine. Your cover is particularly fine.

Yours truly,

BERKS LEHMONT FUR FARMS, INC.

R. E. Molley, Treasurer.

Marathon, Wis., September 16, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

Enclosed find check for subscription to "American Fox and Fur Farmer" for one year. No ranch should be without your publication. Your journal was read with great interest, and hope you will send us every issue.

Very truly,

MARATHON SILVER BLACK FOX RANCH

A. R. Lemme, Secretary

Onawa, Maine, October 4, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

I am very busy at present, but hope to be able to send you something in the way of an article for your November issue. Your September issue proves you surely have a fine magazine.

Yours very truly,

ROBERT THOMAS MOORE

Subscribe to the American publication for the American breeder.

Fur Farming with Sheep

The Results of Three Years Successful Work in
Growing Persian Lamb, Astrakhan and
Krimmer Furs in Kansas

By L. M. CRAWFORD, Topeka, Kansas

I am a pioneer in what I believe will be a new industry for sheep-growers of the United States. As such I am bound to be under suspicion. Men will doubt every statement I make until I prove it. That is natural. I would do the same, I suppose, under similar circumstances. But I want you to be fair with me. When I do prove to you that I am engaged in a promising industry and that I am not the advocate of a wild theory, I will expect you to believe it. Of course it may require a visit to my fur farm to convince you, but I'm willing to go that far with you, if necessary. But read this article first. Then, if you still are a doubting Thomas, write me and I'll arrange for more evidence. After all, there's nothing so mysterious about my undertaking. It's founded on scientific facts, and therefore I believe it will stand.

This article will tell you what I know about raising fur by crossing Karakul sheep from Asia on native American breeds. I have learned what I know on my own ranch near Cottonwood Falls, Kansas, where I have been cross-breeding these sheep for the last three years. I have proved to my own satisfaction as well as to the satisfaction of others that valuable Persian Lamb, Astrakhan, and Krimmer furs worth \$5 to \$10 a pelt, can be grown in the United States just as well as they are produced in Russia. To be the first breeder in the United States, to undertake the production of these furs on a large commercial scale, and to be successful in my efforts almost from the start, has been, aside from the financial gain, a source of great satisfaction to me because of its scientific worth. I feel—and I do not say it boastfully—that I have had a part in introducing a new industry to sheep-growers of this country. And I feel, also, that I have tested it thoroughly and proved it successful.

My own money has been spent in learning results in an undertaking which, ordinarily, would have to be tried, and tested by a state or national experiment station before it could be recommended to American farmers. But it isn't every experiment station that has a fund of \$35,000—my investment in the Karakul business—available for a test of this sort.

And in this connection I might say that my risk and my final achievement have not been unprecedented, nor will it be unequalled in the future. Men, using their own money, long have undertaken and been successful in scientific experiments, the results of which have been given to the world free. It must be so. Public money for such enterprises hardly begins to cover the cost of needed experimentation.

So this article will bring to you my experiences in crossing the sheep of two continents. In addition, I shall quote freely from a book by M. S. Karpov, of the Agricultural Institute of Moscow, Russia, who is recognized as one of the world's foremost authorities on Karakul sheep. If, in giving my results, I have omitted some details which you think would be interesting, or if I have not answered all the questions you may have, please write me, and I shall take pleasure in answering them.

The Fur Farm Started

My decision to start a fur farm probably was born from a desire of long standing in me to grow fur. It appealed to me as fascinating work. More than that—for I couldn't afford to do it for pleasure—it appealed to me as profitable. I want to say, at the start, that I'm not in the fur business for my health.

It's not a hobby with me. It's a business, and I'm in it to make money. But I say the fascination and the pleasure in such work helped, when the opportunity came, in the decision that made me a fur farmer.

How My Chance Came

The opportunity came when a sheep-breeder in Texas, who had imported a herd of Karakul sheep direct from Asia, and with whom I had been negotiating, offered to sell out to me. It was perhaps the first herd of Karakules ever brought to this country. We closed a deal for thirty-four head—nineteen rams and fifteen ewes—and I removed them to my 1900-acre sheep ranch near Cottonwood Falls, Kansas. My total investment was about \$35,000.

Too Big a Chance?

It may seem that I was taking a pretty big chance to invest so much money in an enterprise before the practicability of it had been proved. But it wasn't altogether a gamble. Scientists had proved that lambs resulting from Karakules crossed on native American breeds would bear pelts valuable for fur. These tests of course were only scientific; no one had actually attempted the production of the pelts for profit. But the scientific fact seemed safe enough to me. I was willing to try it. I always have been pretty successful in taking chances, anyway. But there wasn't any doubt about the Karakul sheep thriving in this country. They are a very hardy breed, the extreme hot and cold temperatures of their native land having hardened them to the hardships of weather.

I Buy 1100 Lincoln Ewes

I now gave close attention to stocking and equipping the fur farm. And it was fascinating work, I assure you. We repaired the old buildings and fences on the ranch and built a new barn large enough to accommodate 1,200 sheep. I needed some good, blooded ewes. The better the grade of native sheep used in breeding for fur, the better the pelts will be. So I bought 1,100 selected Lincoln ewes from the Gooding ranch in Idaho. I suppose I might just as well have bought Leicesters, Cotswolds, or Wensleydales, or, in fact, any of the native lustrous long-wool breeds, as the cross with Karakul will produce fur in any case.

An Expert Lends a Hand

The possibilities of fur farming as a new industry has attracted the attention of experts at the Kansas Agricultural College, particularly Dr. R. K. Nabours, an experimental breeder. At my invitation Dr. Nabours became an adviser in the work, and as such has rendered valuable aid to me by his wide knowledge of cross-breeding. He is interested in the undertaking, as well, for the opportunities offered for a study in inheritance. Dr. Nabours believes there are great possibilities in the interbreeding of Karakules with native sheep and with hybrids. If the hybrids produced follow the Mendelian law of inheritance it will be possible, he says, by crossing the half-bloods back to the pure Karakules, to get any number of pure-bred Karakules without the necessity of importing more rams from Asia. But if the hybrids of pure strain in the second generation do not split up into pure-bred Karakules and pure-bred Lincolns according to the Mendelian law, but blend and breed true, then a new breed of sheep will result. Such a breed, if it should combine the good qualities of the Karakul and of some native breed, would be a valuable one for this country.

We Start the Breeding

It was well into November, 1912, before we began crossing the Karakul rams on the Lincoln ewes. In starting so late we made a serious mistake, but we did not take into consideration the fact that the record-keeping would make the work of crossing so slow. We were eager to keep careful records of all the

crosses in order that we might know which rams produced the best results, as well as to get the same information concerning the ewes. Every ewe and every one of the nineteen rams bore an ear-tag with a number. By carefully recording these numbers and by observing the results at lambing-time, we figured that we could get the information desired. But breeding by hand, as this necessarily must be done, to keep records, is slow work, and by the time the breeding season was nearly ended, many of our ewes were unbred. As it was too late then to continue breeding in this manner, we turned all the rams in with the unbred ewes in an effort to have them all bred before the season closed. This proved to be a misfortune for us. Many of the ewes had passed the breeding point before we turned in the rams. Consequently our crop of half-bloods was small—only about 300 came. A cold lambing season killed a number of the lambs and some were born dead, so that only 200 survived. However, not one of the pelts from the 100 dead lambs was damaged. Death or early birth does not affect their value in the least.

Is There a Market?

The United States imports \$14,000,000 worth of Astrakhan, Persian Lamb, and Krimmer furs from Asia every year. American farmers might just as well have that money, and much more. The popularity of these furs in this country would mean a much larger market for them if the industry were brought home. There can be no doubt of an increasing demand for furs of all kinds. A government expert in the Bureau of Biological Survey, where tests with fur-bearing animals are made, says: "The American people are facing a condition in which the supply of furs is entirely inadequate to the demands." So there not only is an unsatisfied demand for furs of all sorts, but there is an opportunity, by bringing the sheep-fur industry home, of creating a larger demand if the supply ever should warrant it. Every pelt produced on our fur farm that we have offered for sale has been sold at good prices in New York City—\$3 to \$10, or an average of \$5 to \$6 apiece for skins from lambs only a few days old, and from lambs born dead. There are equally good markets in other cities. I reprint here letters from Herman Basch & Co., 18 West 27th St., New York, written when we marketed our first shipment last spring:

"In reply to your inquiry as to the average value of Persian lambskins in this market which you sent to us for dressing and dyeing, we would say from five to six dollars would be a fair average in bale lots—according to the state of the fur market and the demand for that class of goods. The skins imported from Europe usually come in bales of 154 to 166 skins. Of course, exceptionally fine skins are worth from twelve to fifteen dollars per skin, but then they are selected skins from big lots. We consider you have done remarkably well for the short time you have been breeding Persian lambskins in this country."

"For your own information, as well as for others breeding Persian lamb for fur purposes, we would advise that after skinning the animal carefully so as not to make any unnecessary cuts in the pelt, you use the following methods: Cut the skin in a straight line down the belly evenly; do not cut off any part of the skin, but leave on ears, nose and tail to the tip. Stretch skin fur down on board evenly, and dry in cool place. Do not salt the skin, or double it up in shipping. The main thing is to avoid the cracking of the skin. Always see that the skin is properly shaped when tacking on the boards, and thoroughly dry before shipping. Do not sun-dry the skins."

The Three Kinds of Fur

The lambskins resulting from a Karakul crossed on native American ewes are a lustrous, curly black. If the curls are small and very tight, furriers call it Persian Lamb fur, and, ordinarily, such a pelt brings a better price. When the curls

are larger and loose, the pelt is known as Astrakhan fur. If the pelt shows shades of gray, it is called Krimmer. Women's coats, made from choice Persian Lamb skins, sometimes sell for thousands of dollars apiece.

Karakul Blood Very Desirable

If American farmers could introduce some Karakul blood into their sheep for no other reason than for the hardiness and mutton qualities of this breed, the Russian sheep doubtless would well repay importing. The intense heat and extreme cold characteristics of their native country have hardened these sheep to the inclemencies of weather. There can be no doubt of their hardiness and adaptability to this country. Since the importation of the herd of which I now have the larger part, these sheep have withstood equally well the heat of Texas and the cold winters of Northern Michigan. It is quite noticeable on our Kansas fur farm that the Karakules and those containing Karakul blood are much more hardy than the native sheep.

Of equal importance, perhaps, is the fact that crossing Karakuls on native sheep results in a great increase in weight, sometimes an increase of 50 per cent. Thirty-five per cent is considered by the head sheep-buyer of Armour's at Fort Worth, Texas, as an average increase in weight. The Karakul breed probably is the heaviest sheep in the world. Another most desirable result of such crossing is the elimination of the woolly or musk-like flavor, so objectionable to many persons, who, for that reason only, refuse to eat mutton. The injection of Karakul blood seems absolutely to breed out this "sheepy taste" in the meat of our native sheep. Those facts are vouched for by Armour & Company, Fort Worth, Texas, in letters from H. E. Finney, general manager. The letters are reprinted herewith:

"I am very glad indeed to offer testimony of our experience with grade Asiatic Karakul Broad-Tail sheep and lambs. We find primarily that they are good yielders and the lambs at an early age are of such weight as to make them economical both for the consumer and the soiler; more than that, they seem to be devoid of the strong mutton flavor that is so often objectionable, and on the other hand, are rich in meat flavor and are good eating down to the end of the tail."

"I take great pleasure in testifying to the superior mutton qualities of the Asiatic Karakul Broad-Tail sheep, because I am very much interested in seeing the development of this strain in this country. Our experience has been that on crosses between Asiatic Karakul Broad-Tail sheep on one or two of our domestic varieties, lambs were obtained which at the proper lamb age weighed 90 to 105 pounds, with a most delicious flavor as well as the heaviest yield of mutton. We have marketed a few lambs that we were able to buy for slaughter with some of the best hotels in the South, and their testimony is right along these lines. Hope you will be successful in introducing this strain generally, because I think it would improve our Southern stock, particularly from a mutton standpoint."

Karakuls Described by Expert

The Russian naturalist, I. B. Sinitsin, gives this brief description of Karakul sheep:

Head small and narrow, with curved headline, ears small, feet thin and long, closely resembling those of the American mountain sheep; triangular, broad tail, average weight not over ten pounds, making manipular coupling unnecessary; always horned; whitish spot on the forehead, tail, feet and sides; wool long and hard, with an absence of soft underwood, grayish in the adult, except the wool on head, ears and all four legs, which is jet brilliant black, the same color as the new-born lambs. After about two weeks the young lambs lose their beautiful tight curls and lustre, which makes it necessary to kill them quite young if the skins are wanted for fur.

"When a few months old they often turn brownish, but in

one year become grayish. The mutton is absolutely void of the musk flavor which gives common sheep, especially the Merino family, the characteristic and, to many people, disagreeable 'sheepy taste,' and it is the most delicious meat known. Average weight about one hundred and fifty pounds."

How to Get a Start

If you are already a sheep-grower it won't mean much of an outlay for you to try growing a few pelts this year. A few half-blood Karakul-Lincoln bucks in your flock will put you in a way of making extra profits on your sheep without much additional expenditure this year. If you do not own a flock of native sheep now it will pay you good interest on your money to invest in a flock. There are good profits in a combined production of fur, mutton, and wool, and it isn't going to take wide-awake sheep-growers long to find it out.

A Mutton Record

This table shows the total number of animals inspected by the United States Bureau of Animal Industry last year, as well as the animals and parts of animals condemned on account of tuberculosis:

TOTAL NUMBER INSPECTED

Cattle		Hogs		Sheep	
10,000,938		26,916,363		13,005,502	
Condemned		Condemned		Condemned	
27,390	49,393	31,517	Parts	Carcasses	Parts
Carcasses	Parts	Carcasses	870,361	None	None

The mental, physical and financial condition of humanity will be improved by using mutton as their meat food.

Correspondence

Muskegon, Mich., Oct. 17th, 1921.

Dear Fox Man:—

Following is a copy of the standard proposed at Montreal and the one proposed by the standard committee of the National Association. You will notice that the standard proposed by the National Association Committee was made to conform with the one proposed at Montreal with the exception of brush and requirements for length. As the National Association gives seven more points for brush, these seven points were deducted from guard fur.

The Standard Committee has found from reliable sources that a live silver fox measuring from forty-three to forty-six or forty-seven inches will produce the most popular length pelt, which measures from fifty-two to fifty-six inches. Our standard gives foxes of the proper length the maximum number of points for size. As brush and white tip have so much bearing on the pelt value of a fox, the committee felt that five points was not sufficient, so they suggested twelve points which they believe is hardly enough, but they are willing to make that concession in order to accomplish the establishment of a universal standard.

The committee feels that definite figures should be used as far as practicable and not leave so much leeway for the judges. It is impossible for all judges to see everything the same way, but if definite figures are given and a mistake is made it is easy to have it corrected at the show. Two foxes at the Muskegon show last year would have scored more than the sweep-

stakes winner if they had received the number of points due them on length, and they measured from three to five inches more than it was necessary for them to score the maximum number of points for length, but as it was one was docked three points and the other four points on length.

If a standard can be adopted that will meet the approval of both the American and National Associations, the National Association, at least, will make an effort to secure legislation that will provide for the duty free entry of foreign foxes that conform to the standard, and get a prohibitive tariff placed on all that do not score advanced registry requirements.

The following have made application for membership in the National Association since the last circular was mailed:

John Hazekamp, Muskegon; Albin Johnson, Belding, Michigan; Mrs. Anna Jackson, Big Rapids; Martin Montague, Big Rapids; M. Bennett, Big Rapids; J. Van Alstine, Big Rapids; M. W. Thomas, Big Rapids; Mrs. R. Saltsman, Big Rapids.

Mr. F. W. Cole of Big Rapids is entitled to a vote of thanks and appreciation from the association as he has been instrumental in securing the applications of thirty of our two hundred twenty-nine members. That is some record and we are proud of it. We have urged each member to try to secure at least one new member, but Mr. Cole has done more than his share.

The show committee will endeavor to secure three of the following four men to act as judges at the show this December: George S. Tuttle, South Ryegate, Vermont; Alfred Frazier, New York City; Robert Pfeiffer, Detroit, and Frank E. Ashbrook, who is with the Bureau of Biological Survey devoting his entire time to the study of the silver fox industry. Mr. Pfeiffer and Mr. Tuttle have indicated that they would accept the appointment, but no word has been received from Mr. Ashbrook and Mr. Frazier.

The secretary has just received a new supply of registration certificate blanks from the printer. These are 3½ by 11-inches, buff color ledger paper and printed in a rich brown ink. These blanks have a number of improvements over the old ones and are much more attractive. The Cass Lake Silver Black Fox Company, Cass Lake, Minnesota and Ben A. Meek, Madison, Wisconsin, are the first to be issued these new certificates.

We are informed that the secretary of agriculture has just recently signed an order recognizing the Canadian National Live Stock Records for silver foxes. Provisions of B. A. I. Order 206 for the importation of other animals now apply to the importation of silver foxes from Canada, which means duty free entry. It is believed, however, that if the proposed tariff bill becomes law an exception will be made in the case of silver foxes, which will be subject to a specific duty of \$350 per fox.

Mr. F. C. Kaye, Editor of the Black Fox Magazine, has offered to donate a silver loving cup to be awarded to the highest scoring female in the show. This cup will be called the Black Fox Magazine Cup. The Muskegon Chamber of Commerce and the National Association will undoubtedly give cups also. If any of the members feel that they would like to donate a cup, please notify the secretary at once so that it may appear in the premium list of the year book. The enclosed stickers are being mailed to you in the hope that you will paste one on the back of every letter you send out. This is an inexpensive means of advertising the show, but may help our attendance and give the industry a little more publicity. Please use them wherever you can.

Members are not giving their support in the way of advertising in the show program and premium list to the extent that was anticipated. It would seem that at least fifty per cent. of the members might be able to use at least a quarter page ad for the sum of ten dollars. A page ad will occupy a space about 5 by 8 inches, half page 5 by 4 inches, quarter page 5 by 2

inches. Send in copies to fit the space you want and your bill will be sent to you along with the copy of the year book after it has been printed. In order to make the show break even, we must have your support.

The year book will contain a directory of all the members in good standing at the time it goes to the printer. If your dues are sixty days delinquent you become automatically suspended from all privileges of the association and are not considered in good standing. If you want your name to appear be sure your dues are paid up to date.

Following are the rates at three of the Muskegon Hotels: Occidental Hotel—Single rooms without bath, \$1.75 and \$2.00; with bath, \$3.00, \$3.50 and \$4.00.

Hotel Muskegon—Single rooms without bath, \$1.50; with bath, \$2.00 and \$2.50.

Park Hotel—Single rooms, \$.75, \$1.00, \$1.25 and \$1.50; double rooms fifty cents extra.

The exhibition will be held in the new Armory building again this year. Those who attended the show last year will agree that it would be difficult to find an auditorium better fitted for the holding of a fox exhibit than the new armory. It is clean, well lighted, well ventilated and strictly modern in every respect. As it is desired to have the scoring completed by noon of the first day, exhibitors are requested to have their foxes in Muskegon on the morning of December 6th. Entries will be examined by a qualified veterinarian before being admitted to the show room.

The Chamber of Commerce will do all it can to make your visit to Muskegon a pleasant one. They will have cars at your disposal so that you may visit surrounding fox farms and have an opportunity to see Greater Muskegon.

Get your entries in promptly. Send in copies for your ad. Use the enclosed stickers. Send in pictures to be run in the show program, and by all means be here and bring your friends. The next regular meeting will be held Wednesday, November 2nd, just a month before the show. The Board of Directors will hold their next meeting, Wednesday, October 19th. All directors please take notice.

J. E. SMITH, Secretary.

National Silver Fox Breeders Association of America.

Standard proposed at the conference held at Montreal September 12, 1921.

SIZE (length)—10 points. No definite figures on length, but points awarded as judges see fit. Foxes not to be measured.

CONFORMATION—5 points.

GUARD FUR—65 points. Color to score 20 points, texture 20 points, and length and density to score 25 points.

UNDERFUR—15 points.

BRUSH—5 points. No definite figures on any particular part of Brush.

Standard proposed by Standard Committee of the National Silver Fox Breeders Association.

SIZE (length)—10 points. Male fox measuring 42 inches, and female fox measuring 39 inches to receive 2 points and for each additional inch in length 2 more points will be awarded until a maximum of 10 points is reached. Thus a male fox must measure 46 inches and a female 43 inches to score the maximum number of points.

CONFORMATION—5 points. To be judged for head, legs and body.

GUARD FUR—58 points. Length and density to score 22 points, color 18, and texture 18.

UNDER FUR—15 points. To be judged for length, density and color.

BRUSH—12 points. Brush to be at least two-fifths the total length of the fox. Length to score from 0 to 4 points; breadth from 0 to 3 points, and white tip from 0 to 5 points.

ANNUAL MEETING OF THE AMERICAN FOX BREEDERS ASSOCIATION AT BOSTON

An Interesting Gathering of Fox Men, Who Discussed Many Matters of Interest—Lieutenant Ashbrook in Attendance

The annual meeting of the American Fox Breeders Association was held at the Parker House, Boston, Thursday, October 20th. The first session started at 10:30 A. M. and it was a most interesting session. The afternoon session began at 2:15 P. M. About forty members of the Association were in attendance.

Lieutenant Ashbrook, the expert of the United States Department of Agriculture, was in attendance and discussed with the members of the Association many matters of importance connected with the industry. Dr. Ned Dearborn also took part in the proceedings and gave the delegates present many valuable suggestions relative to the care of foxes. The meeting was very optimistic as to the future of the industry.

The American Association decided not to hold a live fox show in December as was anticipated. The reasons assigned by the members for the non-holding of such a show were entirely sufficient to warrant this action.

A fuller account of the detailed doings of the meeting will be published in the November issue of "The American Fox and Fur Farmer." The following officers were elected for the ensuing year: President, Dr. Samuel F. Wadsworth; Vice-President, C. Rogers; Secretary, George A. Brackett; Treasurer, E. G. Pond.

RICH FUR FARMS

Those in United States and in Canada Represent Many Millions

The raising of wild fur-bearing animals in captivity for their pelts has been carried on in Canada for many years but it is only within the last few years that fur-farming has become an established industry, according to a recently published official report on this subject, writes J. I. Brittain, U. S. Consul General at Winnipeg, in a report to the Department of Commerce.

The fox has proved the most suited to domestication, although success has been attained in a few instances with mink, skunk, raccoons and Karacul sheep. The earliest record of raising foxes in captivity comes from Prince Edward Island, where they have been raised for the past forty years.

In 1919 the Dominion Bureau of Statistics began the annual collection of returns of fur farms in Canada. The returns show that 424 fox farms, 3 mink farms and 2 raccoon farms were in operation in Canada in that year.

The fur-bearing animals on the farms at the end of the year 1919 numbered 8,396, valued at \$3,201,388, comprising 7,181 silver foxes, value \$3,110,915; 852 patch foxes, value \$77,058; 275 red foxes, value \$11,345; 1 gray fox, value \$150; 1 blue fox, value \$120; 77 mink, value \$1,685, and 9 raccoons, value \$115. There were born in captivity, during the year 1919, 5,048 silver, 510 patch and 174 red foxes and 40 mink.

Approximately 4,849 silver black foxes are being bred in captivity in the United States, according to reports to the Bureau of Biological Survey, United States Department of Agriculture, from 215 fox ranches, representing a value in animals and equipment estimated at \$4,279,830. All reports have not yet been received, and conservative estimates place the number of silver black fox in this country at from 5,000 to 6,000.

And So It Goes

By BRACKETT

We subscribe for a newspaper published in Charlottetown and whose slogan is "The paper that covers Prince Edward Island like the dew." We try to keep posted as much as we can all around in the fox industry, but, all we saw the last month in this newspaper in the way of the live fox industry was one advertisement, wanting foxes and two other pieces, one an advertisement as follows: On September 29 appeared, "Opens New Office." The Canadian Fox Breeders Association have taken over Mr. P. G. Clarks office in the Crockett and Gallant Bldg., Summerside, where an Asst. Secretary will be installed to look after the business of the Association. Mr. Clark has moved to another office in the same building." The other piece we culled out was in the issue of October 4 which reads, "Wanted, Young lady bookkeeper and stenographer in office of the Canadian Silver Fox Breeders Association. Apply E. H. Monkley, Summerside." "And they cover the Island like the dew." "Perhaps they do," guess we will have to write to Chester and find out if it really has been so dry down there lately as all that.

The Commercial Agency of the "Russian Social Soviet Republic" announces in a full page advertisement, its first public sale of raw furs to be held in Leipzig, Germany, of Russian and Siberian Furs. Among the furs offered are 8,000 Red Fox, 3,000 White Fox, 600 Russian Sable Skins, but no Silver Fox Pelts are in the offering.

Experiments conducted at the West Virginia University to determine the vitality of various species of insects, such as moths, under conditions of abnormally high temperature of 100 degrees or over, were recently made. This may reverse the old time custom of cold storage for furs.

At the September St. Louis Fur Sales, there was reported an advance of 20 per cent. over last sale prices. There were

294 Silver Fox pelts offered. The high price was \$260. Off color pelts brought from \$21 to \$90.

Dissatisfaction with the nature of some bankruptcies which have occurred lately in the fur industry, and fears that others which may occur may not be entirely free from tinges of dishonesty has prompted the President of the Fur Merchants Association to call a meeting to take a hand in the situation.

The strike of the Chicago fur workers which started September 1, has been ended by agreement. The new agreement extends until July 15, 1922.

The winter auctions of the Canadian Fur Auction Sales Company will open February 13, 1922.

New York market was the biggest purchaser at the rabbit skin sale of Anning and Cobb held in London September 29. Belgium was the largest continental buyer. England's purchases were above the average.

It is announced by the representative of the Hudson Bay Company, in New York, that the October offering would be 600 Cross Fox, 2,800 Red Fox, 6,200 White Fox and 200 Silver Fox.

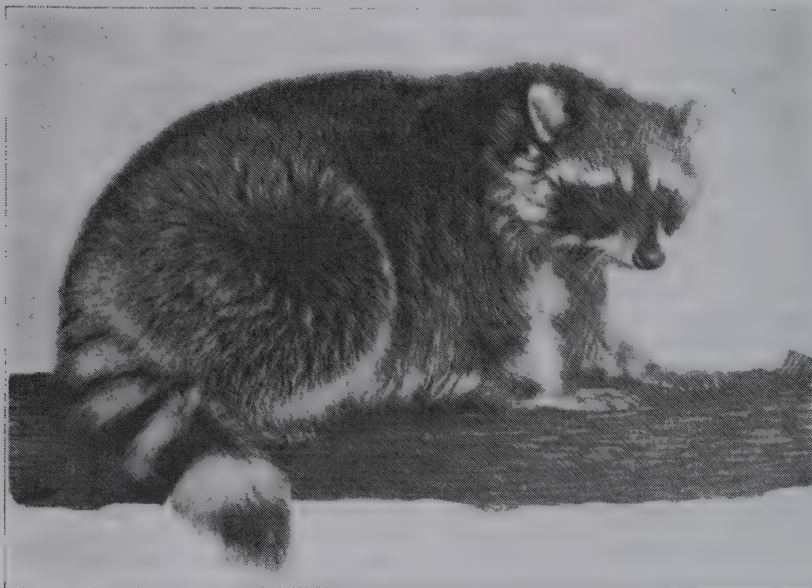
The fresh silver skins sold at a 30 per cent. advance at the September sales in New York City. High price was \$335.

The offerings of the quantities of merchandise to be offered at the Huth's London Sales, late this month include 300 Cross Fox, 500 White Fox, 7,500 Red Fox and 250 Silver Fox.

The Hudson Bay Company's new policy is clearly to push farther north into territories twice the size of its original domain. The farthest north trading post in the world has just been established by the Hudson Bay Company on Baffin Land. The first snow fall of the season had covered the ground on September 1. The station is in direct communication with the outside world by a wireless station which has been installed, and the daily routine of business is registered at the headquarters of the Company.

According to statistics, the average value of pelts taken in Canada for the year 1920 were Silver Fox \$240; Black Fox \$155; Blue Fox \$69; Patch Fox \$63.

That will be about all for this number, only don't forget to come to the Annual Meeting if you can possibly make it.



ALERT AND ON THE JOB ALL THE TIME

October Bulletin American Fox Breeders Association

By GEORGE BRACKETT, Asst. Sec.

BY THE time this reaches the eyes of the reader, the Annual Meeting will most likely have taken place. That there will be able speakers and much of interest transpire, will go without saying. The meeting will be called to order at 10:30 P. M. in Parlor 12 of the Parker House, Boston. This is the same meeting place as last year and it will appear quite natural to the old timer. For the new members who have joined the past year, it will appear like it did to us the first time we met there, a decided improvement over the usual plain cold appearing surroundings and fittings of the customary hall.

Luncheon will be served in a private dining room. Business and professional duties will prevent a number of the present office holders from accepting further tenure of office, and it will be with feelings of regret that it so has to be. The affairs of the Association have been guided on its successful journey so far by the office holders of the past years, with a broad and far sighted policy. Having this example in view, the new officers, which the members see fit to elect, will undoubtedly carry on, and the A. F. B. A. stand and rank as the supreme factor in the Fox Industry as a whole, not for gain in a financial way, but the bringing forth of all the best there is to be had in standardizing the Live Fox Industry and the advancement and co-operation of the live fox breeder.

Outside of the election of officers and some small changes in the wording of parts of the By-Laws, the question of adopting the Universal Live Fox Standard, on which it is hoped the Standard Committee will be able to make its report, stands out as the most important business of the meeting. Every fox breeder realizes that there must be some recognized universal Standard adopted to prevent the low grade of fox from being palmed off on the uninitiated, as a high grade animal. Until the time comes that a fox must reach a certain point of standard wherein there can be no doubt of its true classification, as to a pelt value, etc., and that point of standard be set and made so that it really must be a fine grade of animal to attain a high

per cent. in a universally acknowledged and accepted Standard, the fox industry will remain at the mercy of the unscrupulous dealer, and they have no mercy. Co-operation of those who are in the business on a fair and honest basis, will and must in due time, drive the trickster and dishonest operator into his hole. To accomplish all these like things is the desire and wish and work of the A. F. B. A. It has done much for the live fox breeder in the past and it will surely continue to perform its duties along these lines.

The movement of live foxes is now on and every few days a report is received of sales being made. Of course there is a lot of shopping being done and occasionally a rare bargain is picked up, by a bargain we mean, buying the live animal for below its pelt value. When this happens it is generally the case that the party owning the fox is in need of some ready money, and believes that not only will it help him out on the spot, but also make a satisfied customer. Then again, many ranchers who do not actually need money, will at times, sell a pair of breeding animals for a nominal sum, to a beginner, knowing the buyer will come back to him for other animals, if he makes a success. He considers it good business and good advertising to see that the beginner succeeds with his venture.

We know of several such deals, and it has proved to be good business all around. Early matings have the advantage of finding out if your animals are going to get along together and if not, to try out other matings. Where the chances favor such a large return on the money invested, if all matings are achieved, it is mighty poor policy to delay in using every effort and method used by the successful fox rancher. Don't have only yourself to blame and then find fault. Generally it is the little things that count so much and which may be the turning point of success and failure in a ranch, such as Cleanliness, pure food, knowing your foxes, and keeping one's eyes open to detail, etc. Here is how three valuable foxes were lost this summer, and in a way that it was entirely avoidable. A corner



ONE OF THOSE QUIET SHOTS

post of a pen began to lean over, a post was run from inside the pen up half way so as to prop up the leaning post. The fox lost his hold one day while climbing the wire and fell on the prop—result, broken ribs, pneumonia and death.

A similar case was where a pointed board roof was built over a combination drinking and feed dish. One day this was moved too near the corner of the pen and the same thing happened—the fox missed his hold and landed on the pointed roof. Result, broken ribs, pneumonia and death. The third accident happened in a different way but the result was the same. There had been about a month of very dry weather, the fox was allowed to burrow under without investigation. There came a heavy rain and when the fox started to dig again, there was a cave in and the fox was lost. All these accidents were caused by lack of oversight and were little things that could have been avoided.

They were little things indeed, to prevent, when compared with the value of the fox. One of the new ideas, at least it is news to us, comes this time in the form of the fox houses. It has been tried out and with good results. On the outside of the pen fence at the corner where the dividing fence between two pens comes, an excavation is made (a few inches wider than the floor area of two houses) this excavation is about 10 inches deep. This is filled to an inch or so higher than the rim of the excavation, with rocks, about the size of a hen's egg. Two houses made out of two inch thick chestnut timber, are set on these rocks. The bottom of each house is not made of wood, but of one quarter inch mesh wire. Sand is then put in and allowed to filter around the rocks and fill the spaces until there is a couple of inches of sand on top of the wire. The top of the houses are solid (two inch lumber) and covered with galvanized iron on zinc which is allowed to project about one inch on every edge. *The door is made on the side.* About eighteen inches, to two feet away and all around the houses, is built a wall of two inch timber. The space between the houses and

the walls are filled in with earth and mounded on top. The space between the door in wall and door in the house is stuffed with hay. The chutes run from the houses into the pen, then turn, in one pen to the left, in the other pen, to the right, the chute is on an incline. The chutes have a wooden slide door at the end. When the pups are born, the slide door is put in and left closed to prevent a direct draft and an opening on top of the chute at the same end as the slide door, provides for a means of egress. This opening may be closed and the pups examined without going into the pen, by opening the wall door and pulling away the hay between wall and house door. All in all it has worked very nicely. If there is a tree growing near a pen fence, it is thought well to build these houses under the tree, one on each side.

Don't forget that it only costs \$2 to register a fox with the A. F. B. A. and you will find each year, more than ever, that the call is for registered foxes. Don't let a prospective buyer get the impression that you do not think enough of your foxes to get them registered. Have them all registered before the buyer comes along and be ready to present him with the papers when he buys the fox. It is good business.

Joining the Association and becoming a member is a good advertisement for you as well as the personal benefit you receive. This Association is not out to make money for itself, when you become a member your money goes to further the advance of the live fox industry as a whole, for every member, not for an individual. Your ten dollars and the other gentleman's ten dollars go in for a total and you get the benefit of the total—not just your ten. Think it over.

Better send for that application blank to-day. One of the little things you know.

Co-operate with this publication by sending in your subscription now.



A BEAUTIFUL SIGHT—NATURE IN HER GLORY

CLASSIFIED ADVERTISEMENTS

Under this heading classified advertisements up to 100 words will be inserted at the uniform rate of 5c a word, payable in advance. A discount of 10% will be allowed on yearly contracts for this service. Send check with order. We are of the opinion that these short advertisements bring splendid results at a very small cost. No preferred positions are allowed.

SHERBORNE FOXES ARE GOOD FOXES. A few choice pups for sale. Prices very reasonable. **SAMUEL F. WADSWORTH, M. D. V., 26 Cummington Street, Boston, Mass.**

FOR SALE—Silver Foxes, Cross Foxes and Reds, Raccoons, Skunks, Bears, Wild Geese, Woven Wire Netting, Books. NORTHERN RACCOON FUR FARM, Fairfax, Minnesota.

CLOSING OUT TWENTY PAIRS CROSS FOXES—Some produce Silvers in litters and are as valuable as blacks. Two hundred Silver Blacks to select from pelt value. Ten percent. down, balance as convenient. **TODD BROS., Milltown, Maine.**

WE OFFER to the man of limited means a bona fide opportunity to own some Silver Foxes. The co-operation of many individuals makes it possible. Join us. **SILVERPLUME FOX CO., Orange, N. J.**

RADIOL OINTMENT recommended for Mange, Eczema and all skin ailments. Postpaid \$1.00. **RADIOL LABORATORY, 4198 Vine Street, Cincinnati, Ohio.**

SELLING WIRE NETTING, Foxes, Mink, Skunks, Western Wild Rabbits. Silver Foxes a specialty. Twelve years of square dealing. **TARMAN'S FUR FARMS, Quincy, Pennsylvania.**

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We can fill your needs and at a price that will suit you.

THE DEMAND FOR FURS

The growing scarcity of fur animals throughout the United States, and the consequent high prices, have led a great many persons to consider the feasibility of producing furs with animals in captivity. The American people are facing a condition in which the supply of furs is entirely inadequate to the demands. Under these circumstances the Biological Survey considers that it is wise to encourage the production of furs in this way and we have done all possible to help breeders with advice when they have applied to us. The time is soon coming when the market value of furs will be much greater than at present, and should the ventures prove profitable there is a good outlook for an industry of considerable economic importance—**D. E. LANTZ, Bureau of Biological Survey, United States Department of Agriculture.**

The National Silver Fox Breeders' Association

will show visiting fox men a good time at the Second Annual Live Silver Fox Show, to be held at Muskegon, Michigan, December 7, 8 and 9, 1921.

YOU CANNOT AFFORD TO MISS IT!

"HOW I MADE EASY MONEY"

By R. L. TODD, Milltown, N. B.

To the Editor:—

Being a constant reader of your magazine, and an all round sport, I concluded that to put in this rainy day, I would tell you and your readers, how I made a few easy dollars with live animals. I worked on a farm for twenty years, handling nearly everything alive, yes, have had millions of bees in my bee yards, and tons of honey in my bee sheds, or honey house as I called it.

Worked all day and half the night for a few dollars, yes, they were so few that I couldn't hold them long enough to tell where they came from. I was quite a long time seeing that my dollars were fading away, and I made up my mind I was all in, if I didn't make a change, and make it quick, too.

So I left for N. S. and P. E. I. to sell my last crop of honey, and to look over the country, hoping to find a gold mine in someone's back yard. Ha, ha. I had a dream the night before it was really so, and do you know going over in that boat, crossing the straits, I discovered it was not a dream, but were cold facts, which were told me by two fox men on that boat, but I had a severe shock, when I was told that silver foxes were \$10,000 a pair and would be twenty in a few days. I knew right then my gold mine had faded away again.

However, when I returned to the mainland a few weeks later I found a man willing to sell me three red foxes, which I promptly bought for ten dollars. A few days after I purchased ten more. I didn't have them in my barn twentyfour hours, when an Island man came in and gave me \$1,000, about 90 per cent. Then I purchased five pairs more for \$90 and was requested by wire to bring them to P. E. I. which I did. I refused \$500 at Summerside, but decided to take them to the party that wired. I found he had more horses than money so I accepted his offer of STP—\$50 and four horses, and shipped back to mainland again.

I then decided to build a ranch and start again, which I did. The ups and downs I had would scare you, and discourage the devil himself. For four years I was on the wrong track and just eighteen months ago I hit the right track, and made more easy money than I made in twenty years before—just with the right foxes and knowing how. I fell into a lot of deadfalls, met a lot of foxy fox men, but when I once got clear, I grew awful fast, and best of all Easy. In my next I will tell you more about silver fox farming, and how to get wealthy inside of five years raising silver black and cross foxes.

(To be Continued)

The average value of the silver foxskins marketed from Canada in the season of 1919-20, according to the Dominion Bureau of Statistics, was \$240 per pelt. Black fox came next, with \$155. These pelts, in value, led all other furskins. Fisher was third, with an average of \$84; blue fox was fourth, with \$69, and patch fox fifth, with \$63.

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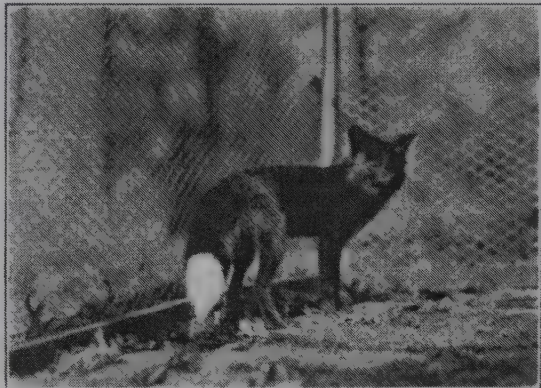
Muskegon, Michigan

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40 LITTERS of 5 and over this year.

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Tan, dress, and make them up all complete, into scarfs, muffs, stoles, dolmans, throws, even coats or rugs.

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- at the displays of Silver Fox Pelts and other exhibits.
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- to the Lectures on all phases of the industry by men who know.
- to the announcement of the Sweepstakes winners.
- to the interesting discussions at the Annual Meeting of the National Association.

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and BE THERE!**

NATIONAL SILVER FOX BREEDERS ASSOCIATION OF AMERICA



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Sir Frank

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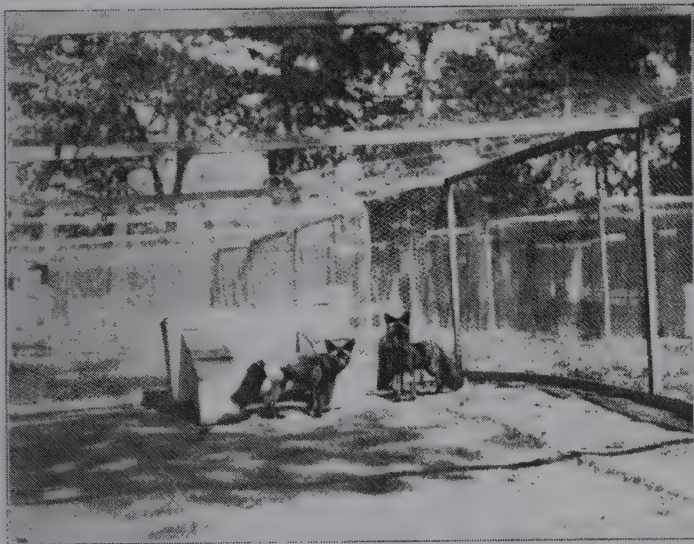
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We have for sale a few pups from these famous foxes; also a few from Count Otto II, whose relationship to Loami, the National Champion, is a guarantee of the quality of these pups.

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American Fox and Fur Farmer

Vol. I

NOVEMBER, 1921

No. 5

PUBLISHED MONTHLY, 406 ARCADE BUILDING, UTICA, N. Y.—PHONE 1778-W
An American Publication Devoted Exclusively to the Silver Black Fox Industry and Fur Farming

WARD B. EDWARDS, *Editor*

PUBLISHED BY "AMERICAN FOX AND FUR FARMER"

OUR SUBSCRIPTION LIST GROWING FAST

The Publishers of "THE AMERICAN FOX AND FUR FARMER" are justly proud of the reception accorded this publication by the fox breeders and fur farmers of America. Our subscription list now contains the name of practically every first class breeder in the country, as well as hundreds of prospective ranchers. Daily we are receiving letters of congratulation on our stand "An American publication for the American breeder." We solicit continued co-operation to the end that this publication shall be of additional service to those it represents.

WHY PURCHASE OF BROKERS?

Why purchase your foxes of so-called brokers who go around the country picking up cheap foxes to sell at fancy prices when you can purchase high class animals direct from the ranches at prices that represent their real value.

CLEAN YOUR YARDS

Every fox rancher and fur farmer should see to it that his yards are thoroughly cleaned and disinfected before Winter sets in, and the ground is frozen or covered with snow. This will make for better and healthier foxes and so for better and healthier pups.

ALL BACK NUMBERS GONE

We have had dozens of letters asking for back numbers of the "AMERICAN FOX AND FUR FARMER," and we regret to be unable to furnish them. The demand for sample copies and the large number of subscriptions received have entirely exhausted our supply and none are left.

ARE YOU A SLACKER?

From the number of congratulatory and commendatory letters we have received from every State in the Union, we are firmly of the opinion that about every fox rancher and fur farmer in the United States believes in the publication. We have tried and will continue to try and give them a publication of which they can be proud and one devoted to their interests. In return we ask them to support this publication by advertising in its columns and by asking their friends to subscribe to it. Are you doing your share to support the "AMERICAN FOX AND FUR FARMER," an American publication for the American fox rancher and fur farmer, or are you a slacker?

WHY NOT CONSOLIDATE?

This publication believes in telling the truth—let the chips fall where they may. We believe there should be one great big National Association representing the fox industry of the United States. Each State might well have an Association of its own, its membership comprising fox ranches in that State who would meet every three months or oftener if necessary to take up matters affecting the industry in general and in their State in particular. Each State Association should elect delegates to the National Association, the number being based on the membership of the State Association, the National Association to meet once a year, or oftener if necessary, to discuss the fox industry from a national standpoint, to see that proper legislation is enacted, to adopt a uniform standard for foxes that could be approved by the United States Department of Agriculture as an honest, fair, reasonable standard, to arrange for a National Fox Show to be held in different Cities of the United States each year.

The fox industry has reached a point in this country where it merits the same treatment as is given other industries. The men engaged in it are big enough, broad enough and far-sighted enough to get together on one Association. Why not do it now?

If all the Associations now in existence would appoint delegates to a conference at some central point, this could be accomplished. We ask an expression of opinion on the question from our readers.

A NEW FUR TRADE DIRECTORY

The Fur Trade Review of 43 West 29th Street, New York City, has just issued their 45th year book or Fur Trade Directory. It is a splendid piece of work and reflects great credit on this publication. It contains the names of fur merchants all over the United States and also a nice line of advertising. The book is well gotten out and very handy for office reference.

GOVERNMENT ASSISTANCE

The United States Department of Agriculture has been, and we feel sure will continue, to be a source of great assistance to fox ranchers and fur farmers in this country. Government officials are beginning to see the industry in the country in a little different light than they did. It takes time to build an industry, but the fox industry in the United States is, we believe, being builded on a firm foundation.

MICHIGAN FOX SHOW

The fox show of the National Silver Fox Breeders Association of America, to be held at Muskegon in December, bids fair to be one of the largest fox shows ever held in the United States. Already many entries have been received and many more are expected. If you can't exhibit, then attend the Show and encourage those who are boosting the industry in the United States.

GET LOCAL PUBLICITY

If you are a fox rancher, get the Editor of your local paper to visit your ranch, inspect your animals, your pens, and give him a history of the business in the United States. This will make a splendid local article and it will reach the eye of hundreds of persons who are likely to become interested in the industry. If your local paper circulates in a farming community, tell the Editor how foxes can be raised on the farm. Advise him of the possibilities of fox ranching and fur-farming as an agricultural pursuit. We will be glad to furnish any fox rancher or fur farmer with a splendid article on this topic, which can be used to splendid advantage in local papers. Get publicity.

If you believe in the fox business and in fur-farming, advertise your belief. Your local paper will be glad to get the news. Use photographs when you can.

ARE YOU IN FAVOR OF A TARIFF ON FOXES AND FOX PELTS?

This publication is very desirous of knowing how many of its readers favor a tariff on live foxes and pelts imported into this country. This means you Mr. Rancher of the United States. You need not write us a long letter; a postal card will do. This is the question: "Do you or do you not favor a tariff on live foxes and fox pelts imported into this country?" Answer now; don't delay.

FUR-BEARERS IN GENERAL

Many farmers in the United States are thoroughly investigating the feasibility of raising all kinds of fur-bearing animals in captivity. We are having many inquiries on the raising of muskrat, mink, skunk, etc. We shall be glad to hear from any of our readers who have had experience in raising any of these animals, and will gladly publish their letters or articles.

QUARANTINE REGULATIONS

The quarantine regulations on live foxes and other fur-bearing animals imported into this country cannot be too rigid in their regulations, nor can they be too exacting in their enforcement. The importation of diseased animals would mean a blow to the fox industry in this country from which it might not soon recover. Reports from ranches all over the United States indicate a very general healthy condition, and it behooves us to see to it that this condition is maintained.

A SPLENDID SERIES OF ARTICLES

We are very glad to announce to our readers that during the next few months they will be treated to a splendid series of illustrated articles on fox ranching in its various phases by

George A. Jeffreys of The Ontario Stock Farm. The first article appears in this issue "Ranch Equipment." It is a splendid contribution to fox literature and the articles that follow will be equally as interesting and instructive.

Mr. Jeffreys is an experienced fox rancher and what he says may be depended upon.

We are sure our readers will receive valuable information and instruction from the articles that are to follow. Mr. Jeffreys will be glad to answer any questions asked by our subscribers, sent through this office.

Mr. Jeffreys believes in the industry and is desirous of contributing his share to its proper development in the United States.

WHEN THE FUR BEARERS ARE PRIME AND WORTH MOST

From "Hunter, Trader, Trapper"

There is only one excuse—a poor one for all concerned—for trapping too early. The excuse is, of course, that some other trapper may get ahead of you.

But where the trapper hasn't any competition—on his own farm, for instance—or where an agreement can be reached to wait, the taking of furs at the right time will bring far larger returns.

In a great many cases inexperienced trappers get out too early because they are not quite sure when the various furs are prime. Hence the following may enable no inconsiderable number of trappers to make more money out of their work this year.

Skunk is prime in the North toward the end of October; South, toward the end of November. They depreciate about the middle of March.

Mink is best during November to the end of January in the North, and in December and January in the South. The fur depreciates during February.

Muskrat is fair in the fall, when trapping is, of course, easiest. But the prime fur is taken in the period from mid-winter to March. A good condition may be expected in the North up to about the first of May while the similar date in the South is about the first of April.

Opossum in the North becomes prime toward the first of November and remains good until March. In the South the prime fur comes about the middle of November. It depreciates somewhat earlier than in the North.

If you are after Raccoon in northern territory, you will find the fur prime about November first. The time is a little later for the South.

Fox, speaking generally, is prime in northern territory from the first of November until the middle of March. For the South the period is from the last of November to the beginning of March.

By having plenty of traps and making every possible preparation to work vigorously during the right season is the way to get the most out of trapping.

MECHANICS FALLS, MAINE

The Androscoggin Silver Fox Company of this place has been incorporated to buy, sell, raise, breed and deal in Silver Black Foxes and other fur-bearing animals. Capital stock \$10,000.00, all Common. Paid in \$5,200.00. Incorporators: President, Egbert H. Ballard, Swampscott, Mass.; Treasurer, Ernest C. Jordon, Mechanics Falls, Maine; Clerk, George S. D. Churchill, North Raymond, Maine; Harry Bryant and Fred L. Mayberry, Poland, Maine; Llewellyn Bryant and Benjamin H. Davis, Auburn, Maine.

THE MERITS OF SILVER FOX FARMING

By F. G. ASHBROOK
Assistant Biologist Bureau of Biological Survey

SILVER fox farming is attracting wide attention, chiefly because of the enormous profits derived from the sale of breeding stock and pelts. As a fur-bearer raised in captivity the silver fox has no rival. Foxes and pelts are in great demand and the prospects for raising silver foxes are good. There is no animal industry to-day which is paying a larger return for the amount of money invested. Erroneous statements and

profitable enterprise when intelligently and conscientiously managed. A silver fox pelt taken in the wild has always been and still is a very rare article. Approximately ninety per cent. or more of the silver fox pelts sold on the fur market to-day are from ranch-bred foxes. These animals are being raised successfully, and the industry is growing very rapidly in the United States and Canada.



LIEUTENANT FRANK G. ASHBROOK

claims have been made which in many cases have misled the public as to the real truth concerning this industry. This has been due, in the majority of instances, to the lack of authentic information regarding the feeding, breeding and management of silver foxes. On the other hand, many people have been misled purposely by unscrupulous ranchers as well as by organized companies engaged in this business, the silver fox being used by unscrupulous ranchers as a medium to extract money from those people unfamiliar with the fox business.

The production of silver foxes has proved to be a most

Fox Growing Sections of North America

The native habitat of the silver fox includes the greater part of North America from the central United States nearly to and including the borders of the treeless tundras. The red fox inhabits nearly all of this region, but the silver fox, although found in most parts of it, is very irregularly distributed. In general, it is much more common in northern localities than in southern but in many parts of the north where red foxes are abundant silvers are produced only rarely.

Silver fox pelts of high quality have been taken in the wild in Newfoundland, from the heights of land between Quebec and the peninsula of Labrador, and from the upper Yukon in Yukon Territory and in the adjacent region in eastern central Alaska. To-day, however, it is exceedingly rare for a trapper to secure a silver fox pelt in the wild.

It is a well known fact to many fur buyers that pelts of fur animals are more valuable when produced in northern localities. Furriers learn from experience that certain localities are not too far south to produce valuable furs, but the conclusions they are able to form are of only general application.

The ordinary individual, however, is seldom able to profit by the experience of furriers, especially if he lives in a region in which fur-bearing animals have been exterminated. He can not judge whether his own locality is suitably situated for producing foxes with valuable pelts. To determine the regions suitable for fox farming, therefore, it is necessary to learn something of the areas within which foxes are known to produce superior fur.

The records of the Biological Survey show that these areas are to be found only north of the southern boundary of the Canadian Zone. This boundary crosses the States of Maine, New Hampshire, Vermont, Michigan, Wisconsin, Minnesota, and North Dakota, and extends southward along the mountains in New York, Pennsylvania, and West Virginia, and is discernible in all the States of the Rocky Mountain region and westward. South of the forested regions of the northern tier of States and western Oregon, however, the Canadian Zone, although sufficiently cold, is too dry for the production of first-class fur. In general, it may be said that silver foxes are being grown successfully in practically every one of the northern tier of States.

Extent of the Fox Industry in Canada and the United States

Fox ranching, or fox farming as it is called, originated on Prince Edward Island in 1889. This island is considered the center of fox farming and has approximately 350 ranches containing about 10,000 breeding pairs of silver foxes. A ranch is so termed whether it contains two pairs or 100 pairs of breeding foxes.

The fox industry has become so firmly established that it is a staple industry not only of Prince Edward Island but of all Canada, and has met with world-wide recognition. The Dominion of Canada has approximately 500 ranches containing 20,000 breeding pairs of silver foxes.

Fox farming has extended to every Province in Canada, to seventeen States in the United States, to Alaska, Japan, and Norway. In the United States, especially in the northern tier of States, fox farming is rapidly becoming an important industry. The number of ranches in this country is approximately 300, and on them there are about 10,000 breeding pairs of silver foxes. States in which foxes are being bred in captivity, named in the order of the number of foxes ranches, are Michigan, Maine, Wisconsin, Minnesota, New York, Massachusetts, Pennsylvania, Montana, Vermont, New Hampshire, Ohio, Illinois, California, Colorado, Iowa, Idaho and Washington.

The Future of the Fox Industry

The outlook for the future in the silver fox business is very bright. The fur market has recovered and considering the offerings of pelts at the auction sales in the fall of 1921, which were below the average, good prices were obtained. Fresh clear skins sold exceptionally well at an advance of approximately thirty per cent. over spring prices. It is well worth the time and trouble for every fox breeder to keep in touch

with fur prices, especially those for silver fox pelts.

A perfectly furred pelt, slightly tinged, is less valuable on the fur market than one fairly well furred but clear in color. Much has been said about the cause of rust or tinge in silver fox pelts. This has been attributed to feed, methods of feeding, and sunlight. However, it must be remembered that one can find rusty and clear colored foxes on the same ranch where identical feeding methods are used and the sunlight is approximately the same in every pen. It is more probable that rust is a factor in breeding and can be eliminated by careful selection.

If the silver fox business is to continue on safe, sane, and prosperous lines, many breeders will have to study more earnestly the requirements of the living animals, particularly feeds, methods of feeding, breeding, and sanitation. A considerable number of breeders can talk foxes and sell foxes, but they are talking one type of foxes and selling another. It is well to be sure that the fox really is of the class and quality it is represented to be. One should be doubly sure that the fur is not tinged or rusty. If a breeder does not know what constitutes an excellent silver fox pelt he had better learn and learn fast.

Fox breeders have problems to solve and obstacles to overcome the same as breeders of cattle, sheep, or swine. The future of silver fox breeding depends largely on how the breeders face these problems and on how successfully they solve them.

AMERICA PRODUCING A NEW PERSIAN LAMB FUR

The show windows of the great Fur Houses in New York are filled with garments made from the skins of lambs produced by crossing grade Karakul Rams on coarse wool white sheep.

It resembles the old "Krimmer" produced in Thibet by the same crosses but is a trifle longer, glossier and finer. Some of the dealers are calling it Kreamer.

At a recent exhibition in the show rooms of Hotel Pennsylvania in New York, a noted couturier showed a full length coat made from this fur, with blue fox collar and cuffs, and he is authority for the statement that this is the fur which every woman will covet when she turns her thoughts to winter garments.

Now is the time of year when the dealers buy furs from the wholesalers, and in spite of the warm weather, there are a number of people in New York especially to purchase furs that will later be sold to the women all over the country.

The collection mentioned is distinguished by the remarkable tailoring of the garments. Fur and fur and then more fur have gone into the fashioning of the coats, cloaks, and capes which are on exhibition, and still they are graceful.

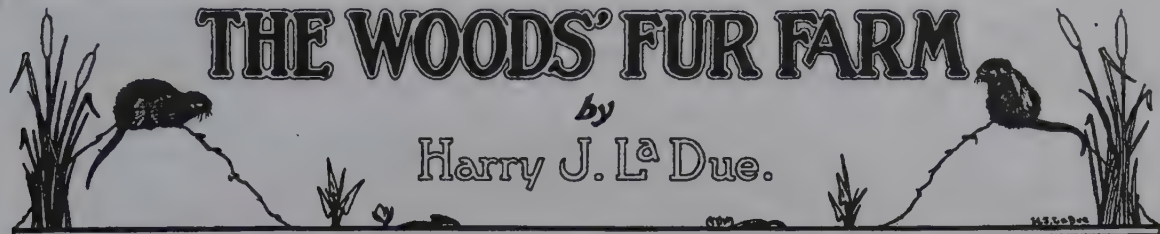
The old favorites are there and in addition, for example, such unusual furs as gray Karakul—one such garment having a sable-dyed squirrel color. There are squirrel coats made of animals caught in various regions, and it is interesting to note the silvery gray of the Northern and Eastern American squirrel, contrasting with the darker and marked California squirrel, and the still darker and richer Siberian squirrel.

B. Graham Rogers, one of the live fox men of the country, paid a visit to Utica recently. Mr. Rogers was on a tour of the ranches of the United States. He is a very clever gentleman to meet, knows the fox industry, and is very very optimistic about the future of it.

Subscribe to the American publication for the American breeder.

THE WOODS' FUR FARM

by
Harry J. L^d Due.



JOHN Woods seated himself at his big dining room table and glancing up as Mother Woods came in from the kitchen bearing the steaming supper dishes, queried, "Where are the boys?"

Mother Woods set the dishes down saying, "Start right in with your supper. The boys have brought the milk in and went out saying they were going down to the marsh for a few minutes."

Sister Helen's sharp young ears heard the sound of scuffling in the lane and she cried, "Here they come now."

Stamping noisily into the kitchen the boys, John, Jr., and Frank, quickly made themselves presentable and hustled in their places at the table. Sinewy, strapping young fellows, the glow of healthy, outdoor exercise fairly radiated from their faces.

John Woods, turning to his sons, said, "Well, boys, you want to make the most of your opportunity to trap in the marsh this winter because I am going to town in the morning to make a contract with that ditching crew for a series of ditches to drain the marsh into Seven Mile Creek. I figure that the marsh will be dry enough to break by next fall. We'll add about one hundred acres of good land to the farm."

Boys Have a Plan Too

Blank consternation greeted this announcement.

"Oh! father," cried Frank.

"Wait a moment, Frank," interposed John, Jr., and he turned to his father.

"Dad, I was going to speak to you to-night about the plans Frank and I have made regarding the future of that marsh."

John Woods, glancing quickly at the tense, eager faces, said: "All right, let's finish supper and then I'll listen to your plans."

A few minutes later the table was quickly cleared and, when the smoke wreaths from his old pipe began to curl around John Woods seated comfortably in the easy chair, John, Jr., and Frank drew their chairs close.

"We could have spoken to you sooner, Dad," said John, Jr., "but we thought it better to wait until the fall plowing was out of the way. Frank and I have trapped on the marsh ever since we were old enough and you know that it has been profitable. Even though the muskrats have been perceptibly scarcer during the past two seasons, we have, due to the high fur prices, been able to bank as much money as during any previous year. Furthermore we have divided the trapping with a half dozen or so other trappers."

"Now, Dad, we think that by proper care we can make those hundred acres of marsh as profitable as any hundred acres on the farm and we were going to ask you for permission to use the marsh and its shoreline as a site for a muskrat fur farm."

"How much shoreline would you need?" asked John Woods.

"In order to control the rats and keep them from migrating it will be necessary to fence the entire marsh with woven wire fence about four feet high," answered Frank. "The dens and runways of the animals extend back into the banks for a considerable distance so it will be necessary to include the high banks and a portion of the meadow where the shoreline is low."

"You see, Dad," said John, Jr., "the vegetation growing along the shore is an important part of the muskrats' diet and besides they usually build their dens back into the banks and higher ground. With our fur farm stock controlled we can raise an unlimited number of muskrats in the marsh."

"How will you feed them?" asked John Woods.

"The marsh seems to be plentifully supplied with water plants now but the natural increase of your animals will, in time, bring about a decrease in the natural food supply."

"We have taken all that into consideration," replied Frank, "and believe we can solve that problem by replanting with plants collected in some of the nearby larger lakes. We will also utilize some of the land along the shore and by planting squash, turnips and other vegetables that are relished by the rats will be able to feed any reasonable number of animals."

"We'll have to admit," said John, Jr., "that some of our plans will be more or less experimental. But we believe we understand the muskrat's habits and needs well enough to evade any serious mistakes. We intended to put in our fences this fall and to patrol the marsh this winter and keep all trappers off. The only fur taken this winter will be," and looking cautiously toward the kitchen he lowered his voice, "enough for two muskrat fur coats for mother and sis. The remainder of the stock will be held unmolested for breeding purposes next spring."

Turning earnestly to his father he said, "Please give us time to try it anyway. If we can't show results in a reasonable length of time we'll be glad to see the ditches go through."

John Woods thoughtfully puffed clouds of smoke ceilingward for several minutes. He knew that the boys had set their hearts on this venture and, as he glanced at John, Jr., he was reminded of the remarks dropped of late by that young man concerning the advisability of his leaving the farm and trying his hand at some other line of endeavor, preferably in the nearby big city. He had, for some time, been trying to figure out a co-partnership scheme for the farm that would serve to hold his boys, at least until they wanted farms of their own. Realizing that this was his opportunity he carefully knocked his pipe ashes into the stove and faced about, saying:

"All right boys, I'll turn the marsh and as much adjacent land as you need over to you for a period of two years. If at the end of this period you can show that your experiment is financially successful I will drop my drainage plans. You may devote as much time actually necessary to run your farm as does not seriously interfere with the regular farm work."

"Whoopee!" cried Frank. "Thanks Dad. John lets go up stairs and find that catalogue of woven wire fencing you wrote for last week."

The Boys Begin Operations

When John Woods came back the next day from his weekly shopping trip in town he brought a surveyor's tape and a bundle of stakes which he had borrowed from the county surveyor.

"There you are boys, now you can take exact measurements for your fence and drive a stake wherever you intend to set a post."



They set to work the next day with a will and by night-fall had half of the shoreline staked. Two days later their order for woven wire fencing was speeding towards the city and they were rapidly digging holes and setting posts along the meandering line staked out around the marshy lake shore. The posts were all in before the wire arrived but the boys put in their spare time leveling the rough ground along the fence line and filling the hollows with rocks and boulders.

The wire finally arrived and with it the hardest part of the whole undertaking. They found that it was a real task to stretch that fence and at the same time keep it snugly tight at the bottom. This difficulty was, however, eventually overcome by cutting the wire and fitting it to the contour of the ground. They worked early and late and when, on the first day of the trapping season, two professional trappers, heavily laden with traps, arrived at the south shore they were confronted by a sign atop the tightly stretched fence notifying them that this was a private preserve and that trespassing and trapping were strictly forbidden.

Old Davy Williams jerked his thumb at the big sign and snarled, "Jud, that 'ere sign means that we'll be a few dollars shy at th' end o' this season. Who'd thought it? I've trapped this country for nigh onto thirty years and hev' seen the good trapping grounds ditched and drained until there's hardly a spot left for a rat to wet his feet, but when John Woods puts up a sign like that it means he's got a dang good reason fer it and I'm goin' to find out what it is. Come on Jud."

John Woods Explains

The two trappers made their way around the lake and up to the big barn, where they found John Woods and his boys busy at the morning's milking.

"Hello, Davy!" greeted John Woods.

"Hello, yourself, John," answered Davy.

"Say, what in time are ye aimin' to do with the fence and signs around the marsh?"

John Woods, detecting the resentful tone in the old trappers' voice, arose from his stool saying, "We're dividing the farm into departments, Davy, and you have just walked around our latest addition, the Muskrat Fur Farm department. Come on up to the house and I'll explain it over a glass of sweet cider."

Leading the way to the house, he seated his visitors around the dining room table and placed a sparkling glass of cider before each one. Then he carefully explained his boys' plans for a fur farm.

When he had finished Old Davy rose and banging his big fist down on the table, exclaimed, "By gum, John, that's an idea I've had in mind for several years, but somehow or other, that's as far as it's got. I haven't a great deal of good farm land in my place, but I've got one of the best little muskrat lakes in the country, and I'm goin' to take care of it. Come on, Jud, let's go home and if the ground ain't too hard we'll try and put up some sort of a fence 'round the end next to the creek, anyways."

When John Woods went back to the barn and told the boys what Davy Williams had said, John, Jr., said, with a sigh of relief, "That lifts a load off my mind. I anticipated a little

trouble with some of the trappers, but if Davy Williams thinks it's all right, it'll help some."

After dinner that day John, Jr., called his father into the dining room, where he had several sketches spread out on the table.

"Our farm will not keep us very busy this winter, Dad. We're going to make a few hundred stretching boards, however, and also try out several schemes for trapping muskrats alive. The steel trap is not only cruel, but results in a good many amputated feet. Unless the rat is caught well above the delicate bones and tendons of the feet it invariably tears itself loose and we would soon have a marsh full of crippled muskrats.

Would Save Best Rats

"Furthermore, the steel trap will not permit us to carry out our program for selective breeding and marketing of pelts. We must work out some method of taking the animals that will permit us to save the biggest and darkest rats for breeding stock, and we have several ideas which we wish to try in this connection. One is an idea which Davy Williams has long talked about, but, as usual, has never developed. It is a box trap of metal, with drop gates at both ends and designed to set into runways. Davy has figured that the rat will go through any obstruction in order to get to and from his den in the bank, and he says a fairly long box trap, with a rounded bottom that will fit nicely into the runways, and with little wire gates that the rat can nose up and slip under will catch 'em by the dozen. We don't know whether it'll work or not, but we're going to give Davy the benefit of a thorough try-out, and if it proves successful he ought to patent it. The other trap is an ordinary trigger box trap to be baited with food and set along shore and on some of the houses."

"But the best idea is our own. When the farm begins to operate on a large scale it will be necessary for us to trap thousands of muskrats in a few days. The fur is in its prime in early spring and our stock will bring largest returns if taken just after the ice goes out in March. In order to accomplish this it is imperative that we work out a plan for trapping rats, not by the dozens but by the hundreds. I believe we can do it with these corrals."

Pointing out one of the sketches he went on: "This is merely a circular pen with an inverted funnel-shaped opening. The principle is an old one and is used in the small wire rat and mouse traps and also in some forms of nets used by commercial fishermen."

Stockade Trap Sketched

Picking up another sketch, he continued, "We are using the same principle as used in Davy's runway trap here. The large circular pen will have numerous funnel-shaped wire tunnels leading into it and each funnel will have in the end the identical little wire gate for the rats to raise."

Then laying the next sketch before his father, John, Jr., said: "This is my own plan and I've a hunch that it will work more satisfactorily than any of the others. You'll note I am using the same circular pen but instead of setting the fence erect I am inclining it inwards, so that the whole affair looks very much like an inverted saucer with the bottom broken out. The fence will be laid in a shallow trench and then tacked to the posts which are set at such a well defined slant inwards, towards the center of the circle, that the top of the fence will be about two and a half feet from the ground level."

"Hold on," questioned John Woods, "how do you intend to induce your stock to go into these enclosures?"

"Oh! Yes, guess I left that out," answered John, Jr., "Well, this won't differ from the usual trapping methods in that respect. The animals will be enticed into the enclosure by the appetizing odor of some favorite food. We will keep a good supply of winter vegetables in the root cellar for this purpose

and when the time arrives for the taking of fur we'll pile a little heap of the vegetables in the center of each corral. It seems reasonable to suppose that the muskrats will welcome the change in diet after feeding on marsh plants throughout the long winter.

"I believe all of these corrals will work, but my design will prove the most efficient because the animals can enter it from any side without having to travel along the edge looking for an opening. The slant of the fence is so gradual that the muskrats can easily climb it and, when once to the top and in sight of the vegetables I don't believe a little drop of two or three feet will deter them from going over the edge. We may find it necessary to lay straw or rushes on the fence at intervals as the rats might take exception to crawling up the wire even though the mesh be small. We could make our fence out of slats and overcome that difficulty of course, but I think they will enter more readily if they can see through the fence and especially if there are other rats inside busily feeding."

Father Urges Trial Pen

"I reckon you're on the right track, boys," admitted John Woods, "but I'll tell you what I'd do right now. I would set up three small trial corrals, according to your plans, and I'd hurry it before things freeze up for keeps. No need to make them large, say big enough to hold about a hundred animals. Get the fences up anyway and leave a section open here and there so that there will be no danger of imprisoning any muskrats before you are ready for them. You'll find this will be a blame sight easier than trying to set them up in the frozen ground next March."

"You're right, Dad," Frank assented, "we have enough wire left to just about build three small corrals and we'll get busy at them right away."

The boys selected sites that very afternoon and within a few days triumphantly announced to their father that the three corrals were completed.

Grim, old winter set in with a vengeance soon after and Frank and John, Jr., devoted their spare time to whittling and smoothing a rapidly accumulating heap of stretching boards and two daily trips over their trap line along Seven Mile Creek. The creek ravine and the little feeder ravines emptying into it had, in the past been very productive and this year proved to be no exception. The boys had acquired a good, practical knowledge of the art of trapping and knowing, as they did, every foot of their ground were able to exact their usual toll from the fur-bearers. Water-sets near spring-holes yielded several belated raccoons, and the mink, which appeared from their tracks along the creek to be unusually active and numerous, stepped into their cleverly concealed traps so frequently that the boys began to have visions of once more enjoying the satisfaction of having a tidy, interest earning sum in the bank. Tracks noted along the big fence around the marsh and the subsequent capture of several mink in traps concealed along its length were the subject for delightful speculations concerning the harvest to be reaped when the marsh would be teeming with muskrats. No animal appeals more to the keen winter appetite of the blood-thirsty mink.

Christmas Furs Promised

The gold old-fashioned custom of hanging up a stocking on the eve of Santa Claus' annual visit was still a revered one in the Woods' home. On Christmas morning Mother Woods and Helen stole softly down the stairs and excitedly began emptying their stockings on the big table. The first object to fall from Mother Woods' stocking was a long, slim envelope.

"Why, what is this?" she cried, as she tore it open and turned the narrow sheet of paper it contained over and over in her hands. "Come here, Helen, and read this for me. I've left my glasses upstairs."

Helen eagerly ran around the table and picking up the paper gave it a quick glance.

"Oh! listen, mother, it says, 'We, the undersigned, do hereby pledge ourselves to deliver, on or before the 15th of April, next year, enough prime muskrat skins to make a fur coat for the bearer. Signed, with the best of Xmas wishes, by

JOHN WOODS, JR.
FRANK WOODS."

"Isn't that a perfectly splendid Christmas present?" cried Helen as she danced around to her own stocking and dumped its entire contents on the table. "Oh, Goody! Goody! I've got one, too!" and she frantically waved a long envelope before her mother's still astonished eyes.

John Woods, who had come downstairs to build the kitchen fire came in at this time and noting the excitement said, with a twinkle in his eye, "Well, a little slim piece of paper can hold a mighty big Christmas present, eh! Mother?" and he extended another long envelope towards her. "That," he announced, "calls for the prompt delivery of enough mink hides for a fur cap and mittens and I'm going right upstairs and collect."

Tiptoeing softly up the stairs he cautiously opened the boys' door and peered around it into the room, only to be greeted by a fusillade of flying pillows and shouts of "Merry Christmas! Merry Christmas!"

how it had, at last, stepped into two traps set on a narrow ridge near the creek, which they had discovered was his favorite run-way to the rabbit infested brush land on the top of the bluffs.

From then on until the first thawing days of March the boys were busy preparing their catch of fur for market.

The break-up came almost over night, and John, Jr., glancing out of his bedroom window one morning, joyfully exclaimed, "Open water! Look, Frank!"

Sure enough the marsh had opened and after breakfast they ran to the root cellar. Carefully packing a basket with cabbages, carrots and turnips they hurried to the marsh. First they deposited a good sized heap of vegetables in the center of each corral. Then, making a last careful hunt for loopholes in the fence, they went back to help finish the chores. That day was the longest one in their memory.

The first long gray streaks of dawn were appearing over the woods along the creek when two silent figures stole from the house and cautiously made their way down the lane towards the marsh. Nearing the west bank they crouched and crawled as noiselessly as possible up to the fence and lay face down, listening with baited breath. Below them, in the darkness, was the corral with the slanted sides.

"Sh!" John, Jr., gripped his brother's arm.

Something was splashing water out in the lake.



The month of January was marked by deep snows and bitter cold. Traps and carefully planned sets were snowed in almost daily, and even the hardest fur-bearers seemed to have holed up. The boys were beginning to find the long wait until spring almost wearisome until, one bleak February day, Frank reported fresh fox tracks in the orchard. This bit of news sent them both scurrying into the workshop where they quickly laid out and tested the springs of all their No. 2 traps.

Wily Old Fox Caught

This particular fox was a wily old fellow, and the boys were forced to utilize all their trapping ingenuity. Dainty footprints in the snow around their well laid sets showed plainly that Sir Reynard's inherent cunning and suspicion controlled even his acute hunger. John, Jr., and Frank exhibited a pardonable pride when, on a blustery morning several weeks later, they triumphantly entered the kitchen bearing the pelt of a splendidly furred red fox and related to the family the story of

"Ducks!" gritted Frank between set teeth.

The sounds of hurried scampering below caused them both to strain their eyes towards the corral.

"Frank," muttered John, Jr., "that pen is chockfull of rats or I miss my guess. Listen!"

The boys waited in an agony of suspense. Mercifully the light of day broke swiftly. The outline of the corral became discernible and presently the inky blackness of the interior became gray. The boys looked in vain for the heaps of vegetables.

"They're gone," they both whispered at once. "Frank," ejaculated John, Jr., "do you see the muskrats?" Peering intently into the corral, Frank backed away from the bank, exclaiming, "It's alive with 'em. I'm going back and bring Dad down," and he went up the lane on a dead run.

Whole Family Comes to See

Several minutes later, John, Jr., glancing over his shoulder, was surprised to see, not only his father, but Mother Woods

and Helen, hurrying towards him. When near he motioned for them to get down low.

"Land o' Goodness," breathed Mother Woods, as she took in the sight below her, "Will you look at the animals?"

"That's your fur coat," chuckled John Woods as he backed away from the edge.

When they were all safely out of sight of the muskrats, John, Jr., hurried them all back to the house saying, "Frank and I have a day's work ahead of us so we'd better finish the milking and have breakfast as quickly as possible."

Immediately after finishing the chores and breakfast they hurried to the shop and taking a big sack and hardwood club apiece started for the marsh. They visited the other pens first and were overjoyed to find several muskrats in each. It was plain, though, that John, Jr.'s corral design was by far the most efficient. Hurrying back to it they easily jumped over the side and standing in the center endeavored to count the muskrats.

"How many did you count?" asked John, Jr.

"As near as I can make out," answered Frank, "there must be about seventy-five in here."

"That's about right," agreed John, Jr. "Now, how are we going to select the ones we want?"

"Well," answered Frank, "I've been puzzling over that question all morning and I can see that's a problem we haven't figured on. We must have a small pen of some kind that we can drive the rats into. I've got it John! We'll make a small, narrow pen with fairly high, straight sides and set it outside the corral opposite one of the sections that we left out last winter. Then we'll lift out the section and drive our catch into the pen. In the small pen it will be easy to pick our animals."

"That will work," cried John, Jr. We'll have to dispose of this bunch first but we will build that pen to-day."

By dint of considerable running and quick work with the clubs the choicest muskrats were soon killed. A light blow on the animal's head with the heavy sticks was enough to cause instant death.

Find Method Is Humane

The boys both agreed that this was the most humane trapping method they had ever employed. The untold suffering caused by the merciless clutch of steel jays and the feeling of remorse that often came over them as they picked up a sprung trap with its mute reminder of dumb agony evidenced by the tiny paws dangling from the cruel nippers was entirely lacking in this novel form of trapping.

The boys spent the rest of the day skinning and stretching the pelts and in building the little pen for use on the morrow. They also set several small box traps on rat houses and placed the model runway trap, built after Davy William's plans, in a much used runway.

The next morning found them on the marsh before sun-up. They were overjoyed to find the slanted corral had caught even more rats than the day before and after using the little killing pen voted that a perfect success. As quickly as possible they pulled up Davy's runway trap and its weight told them before it emerged from the water that it, too, was a success.

At noon they telephoned Davy and asked him to come over. There wasn't a more amazed or tickled man in the county than Davy Williams when he bade the boys good-by that evening. They had offered him free use of every idea they had worked out and, in addition, John Woods had promised to help him procure his patent on the runway trap.

Two days after, there being more than enough prime skins drying in the attic to make Mother and Helen's fur coats, the boys again opened loose sections in the corrals and called their trapping off for the year. The remaining vegetables were, however, daily portioned out over the marsh. The hungry muskrats ate everything offered them with great avidity. This addition

to their natural supply put them in splendid condition by the time the succulent new growth of natural plants had started and, undoubtedly was partially responsible for the large, healthy litters of young which made their appearance later.

The warm sun soon thawed out the frozen soil and the days that followed were devoted to all the busy spring duties of the farmer. The boys fenced off and plowed and planted a few fertile strips along the marsh to carrots, turnips, cabbages, squash and beets, but left the little fur-bearers strictly alone.

Muskrats Multiply Rapidly

Muskrats under normal conditions are remarkably prolific. They mate in March and the first litter is usually born in April. A second litter appears in June or July and this is generally followed by a third litter in August or September. The litters average from six to eight young in number. This wonderful fecundity explains why they are so abundant, notwithstanding their many enemies. In addition to the trapper they are easy and natural prey for mink, foxes, otter, hawks, owls, and large turtles.

The muskrats in the Woods' marsh were, to a certain extent, more or less immune from vermin depredations. The fence made it extremely hard for mink to gain admittance to the marsh and John, Jr. and Frank made short work of any rapacious hawk or owl caught in the act of molesting young muskrats.

The turtles were harder to control but Davy Williams promised to show the boys how to catch them with the aid of a light on calm autumn and spring nights. For a period in the fall and spring the turtles could be found at night floating on the surface or laying on the bottom in shallow water. Davy had made many a dollar catching them at these times by simply placing a brilliant searchlight in the bow of a flat bottomed boat and sculling or paddling around the lake, scooping up the dazed turtles with a large dip net made of wire netting or with a common barn fork. In the center of the boat he placed a big barrel and into this the turtles were dumped. When a sufficient number had thus been gathered he carefully boxed them and shipped them alive to the nearest large market.

The Marsh in Summer and Autumn

Throughout the long summer the Woods' marsh was a beehive of industry. Proud and anxious teal and mallard parents led downy broods of ducklings back and forth across the water. A cocksure, little ruddy duck and his mate began to show signs of losing some of their assurance as they daily endeavored to pilot a half dozen bristle-tailed progeny safely around the marsh. A gentle, quiet family of wood-ducks could occasionally be seen sunning themselves on the trunk of a fallen tree near the water's edge on the south shore.

The redwinged blackbird and the yellowhead vied with each other as they bowed and scraped and swung gracefully about on the pliant reeds. The redwing seeming to pit his rich black and red coloring and his wonderful liquid "conk-er-ee" against the more brilliant black and yellow habiliments of the yellowhead. Quietly and with almost ludicrous dignity bitterns stalked over the bogs near shore.

At dusk the confusing murmur of young coots, rails and gallinules could be heard emitting from every patch of thickly grown rushes. And through it all could be seen the V-shaped wakes of countless muskrats. With all the teeming summer life of the marsh one could not help but notice that the busy, little fur-bearers were the predominating note.

Helen, the only member of the Woods family who had any great amount of leisure time to spend in this entrancing spot, even complained that, no matter how closely her gaze was riveted on some interesting happening in bird life, the muskrats were sure to distract her attention. If she attempted to watch a clumsy gallinule baby flounder through the upright



stalks, a muskrat family squabble was sure to start on on the nearest rat house. If a squad of cunning ducklings crossed her vision she stoutly affirmed that a big muskrat was certain to break water nearby and to contentedly float, low down in the water with only his head and his long, curved tail protruding, usually scaring the ducklings back into the rushes.

At the first sign of let up in the work, John, Jr., and Frank went over the marsh thoroughly and chose the sites for the big corrals. They knew, to a nicety, the favorite feeding spots on the marsh and wherever the contour of these places was suitable they decided to erect a corral. Throughout September and part of October their time was divided between the farm and the marsh. The vegetables were gathered early and stored in the root cellar and part of the apple crop, with the exception of the windfalls, was also stored.

Big Corrals Rushed Up

The big corrals were built in record time. When the last one was completed John, Jr., and Frank clambered up into the branches of a tall oak tree near the shore and surveyed their handiwork. Curious looking objects, indeed, were the corrals from this point of view.

While looking at the big, squatty circles Frank had an idea and turning to John, Jr., asked, "Don't you think it would be a good plan to place a few vegetables in the center of each pen now and sort of get the rats acquainted with them?"

"Sure," answered John, Jr., "but, we'll use the windfalls in the orchard instead of vegetables. I hate to see all those apples go to waste and muskrats are crazy for them."

The Woods boys had not usually taken much stock in the yearly weather prognostications based on the house-building industry of the muskrats. However, their days of labor on the marsh had opened their eyes to hitherto undreamed of insights into animal life, and late in October they noted a perceptible change in their fur-farm stock. Activities which were usually carried on under cover of the darkness were now boldly executed in broad daylight. The little fur-bearers could be seen everywhere. Their V-shaped wakes crossed and recrossed as they swam to and fro. Here and there, noticeably in shallow water, they could be seen mysteriously diving, several animals apparently aiming at one spot. The boys had long ago discovered that this feverish activity preceded the erection of their winter house. The seemingly aimless diving was for the purpose of hollowing out a chamber in the soft bottom of the marsh.

From the chamber tunnels were dug, leading well up into the banks and above the water mark to carefully hollowed out nests which would eventually become the family nurseries. With the completion of the tunnels work was commenced on the houses proper. Mud, sods, marsh grasses and reeds were cleverly molded into a dome-shaped pile, directly over the chamber leading into the tunnels and often projecting several feet above the surface of water. Two chambers, one above the other, are generally provided for in the larger houses. The upper one is lined with marsh grass and is used as a sleeping apartment and dining room during the long winter months. In a surprisingly short time the marsh was fairly dotted with these snug bungalows, and when shortly after an extended cold snap locked the marsh in an icy grip, John, Jr. and Frank were forced to admit that the muskrats evidently had advance information.

A Most Profitable Winter

Unprecedented heavy snow storms in December brought winter on apace. Conditions were not at all favorable for trapping, but the boys laid out a line which kept them fairly busy. Sets along the marsh fence were, as anticipated, unusually productive. More than one inquisitive mink found to his sorrow that a hurried trip around the fence ended in a well concealed steel trap.

Unlike the past winter they wasted little time over idle fears regarding the successful culmination of their plans. In fact the success of their experiments had given them a confidence that, coupled with their youthful enthusiasm, easily dispelled all doubts.

Every bit of time that could be spared from the farm work or their trap line was devoted to study. They subscribed to numerous outdoor publications, sportsmen's and trappers' magazines and farm journals and in addition they eagerly added to an already large library every book that attracted their attention pertaining to fur-bearing animals, trapping and the handling of raw furs. They also took up the study of plant life and especially of the water plants that were so abundant in their marsh. Their father's warning that a preponderance of muskrats in the marsh would deplete the natural food supply had had its effect, and they were determined not to be caught napping.

Trying Rats Out as Food

The soil requirements and the seeding and germinating habits of yellow and white pond lilies, bulrushes, cat-tails, sweet-flag, wild rice and celery were thoroughly studied and plans were made for the procuring of seeds and roots of these plants from larger lakes whenever their own supply was threatened. The whole family had become imbued with the enthusiasm of the boys, and many were the interesting discussions around the dining room table. The days devoted to healthy farm work and invigorating tramps over the trap line and the nights of delightfully interesting study made the long winter pass all too quickly.

One of the first questions brought up concerned the disposition of the carcasses of the muskrats at the killing time. A careful perusal of their books and magazines disclosed the fact that a ready market was found for muskrat flesh taken on the famous trapping grounds off the coast of New Jersey, Delaware and Maryland. They found that the meat was regularly sold in the large Eastern markets under the trade name of "marsh rabbit."

John, Jr., and Frank became so interested in this subject that they set a few traps near a spring hole in the marsh and took a half a dozen muskrats to experiment on. These they skinned, taking pains to cut all glands off the meat. They then prepared them in different ways according to the recipes they had clipped from time to time. After which they invited the rest of the family to partake of a feast of muskrat fried, roasted, stewed and broiled. Even Mother Woods who had looked on the boys' preparations with many misgivings finally admitted that the meat was delicious no matter in what manner it was prepared.

John, Jr., declared, "It's a shame to call it marsh rabbit. It's just as good if not better than rabbit. No animal is more cleanly in its feeding and living habits than the muskrat."

John Woods advised his sons to get in touch with several commission firms at once and try and find a market for their expected supply of meat.

The methods employed by rabbit breeders and fox farmers were carefully studied. Especial interest was taken in the results obtained in the efforts to breed for color in pelts. The boys' plan of saving the darkest animals for breeding purposes would undoubtedly improve their fur in the future. However, John, Jr. announced his determination to import a few black specimens from the New Jersey marshes for experimental purposes.

"I realize that the color of the Eastern animals may be due to the salt water environment, and the muskrats I import may not thrive in our fresh water lake," he admitted. "Still I would like to procure a few to place in the small pond in the pasture. We can fence them in and keep them under close observation. If they do well they will help wonderfully to raise the standard of our stock."

The Final Test Is Made

When the rivulets of melted snow began pouring into the creek ravine the Woods boys closed the opening in the big corrals and anxiously prayed for sunshiny days and warm south winds. A few mornings later they sprang out of bed and rushed to the window eagerly hoping that the peculiar play of light on the window panes meant the reflection of the bright morning sun on rippling water. Sure enough, the lake had opened and the action of wind and water was fast demolishing the fringe of spongy ice around the shore.

Never had the chores been finished in such record time as on that morning. After breakfast the gray team was hitched to a box wagon and driven to the root cellar. John, Jr. and Frank quickly loaded the wagon with an assortment of vegetables from the bins and drove to the marsh. Big heaps of vegetables were deposited in the center of each corral. Then they cut huge bundles of rushes with a scythe. These were hauled to the corrals and were woven into the wire at intervals along each enclosure. Frank, who had conceived the idea, explained that the rush carpets would dispel the last doubt from the muskrat's mind when they attempt to walk up the gentle slope of the fence.

When every corral was properly baited the boys drove back to the farm and devoted the balance of the morning to the shop. The place was thoroughly cleaned, traps were greased and hung up out of the way, the stretching boards were placed where they would be handy and the skinning knives laid out on the long bench. In the afternoon they drove to town and made arrangements with two young fellows who were fairly good trappers to come out in the morning to help with the skinning.

Needless to say there was no danger of the boys oversleeping the next morning. Long before daylight they were eating their hastily prepared breakfast. No hunting or trapping trips had ever caused such a tingle of anticipation as affected John, Jr. and Frank on this the morning which they had patiently awaited for over a year and a half. The success or failure of their planning and industry would be decided within the next hour.

As they walked down the line in the first rosy light of dawn Frank said, "John, we will wear ourselves out running from pen to pen. Let's climb up into the big oak tree and wait till it's light enough to see all over the marsh. I've brought the field glasses along and we can size up the corrals near at hand in a hurry."

John, Jr. willingly acquiesced, and in a few minutes they were seated in the upper branches of the oak vainly trying to peer through the heavy fog which lay like a blanket over the marsh.

The sun had now appeared above the horizon and in a few minutes its warm rays, with the aid of a light breeze, had dispelled all trace of fog. Frank eagerly trained his glasses on every corral in the immediate vicinity. Joy fairly radiated from

his countenance as he gave the glasses to his brother and cried, "It's a success, John. The corrals are full. I'm going to get down out of here before I fall down from sheer excitement," and he slid hurriedly to the ground. John, Jr. quickly joined him and they immediately set out for the nearest corral.

Lifting out the loose section, the boys drove the muskrats into the killing pen and proceeded to weed out the largest and darkest animals which were to be saved for breeders. The proper method of handling the animals in the pen had been the cause of many a debate. They had finally made up their minds to sort them first, deciding that the excitement of killing might work irreparable damage to the chosen breeders.

A tool had even been devised to aid in lifting the breeders from the pen. It was obviously impossible to go into the pen and do this with bare hands, therefore the boys had made a couple of gaff hooks for this purpose. These were simply enlarged nippers patterned after a similar contrivance used by fishermen to aid in landing game fish. A spring controlled hand grip operated a pair of padded jaws which opened and closed at the end of a rod about five feet long. Holding this above the animal a slight upward pull on the handle served to close the jaws around its body after which it could be easily lifted out and released.

The two trappers from town arrived in time to see the last black specimen lifted from the pen. John, Jr., and Frank next proceeded to show them how the killing was done. They then divided forces and visited the remainder of the pens. The total catch had exceeded even their fondest hopes and the selection of breeders and killing took several hours longer than they had anticipated.

Realizing that the skinning would keep them busy all the afternoon and most of the following day, they decided to place the bait that night as usual, leaving the corrals open so that the muskrats could go in and out at will. When all the animals had been disposed of, the team and wagon was brought down to the marsh and the huge pile of muskrats hauled to the shop.

Busy days followed. The strenuous work commenced to tell on the boys and they eagerly accepted Davy William's offer of help. Every other night the corrals were baited and the sections replaced. The skins were carefully cased and hung in the large attic to dry. The carcasses were drawn and packed in ice and shipped to several commission men who had signified their willingness to handle them.

Farmers Pour In to See

The catches were enormous and became the talk of the countryside. It was not unusual to have several farmers and trappers drive into the Woods' farmyard before sun-up, intent on seeing with their own eyes the corrals full of muskrats. The amazed look in their eyes as they bid John Woods good-by led him to remark to Mother Woods one morning:

"I'll bet some of the neighbors wish they hadn't been in such an all-fired hurry to drain their marshes. One day's catch of rats out of our marsh will net the boys more than they have derived from their mud-holes in the last ten years. Did you mind Jerry Walker sizing things up this morning? Jerry had to fight to force the drainage of the marsh west of his place, and it cost him more per acre than his farm land. Except for a dozen of acres of rank meadow he hasn't raised a thing on that reclaimed marsh bottom but blackbirds and frogs and mosquitoes."

The end of the legal trapping season was still several days off, but John, Jr., and Frank decided that they would cease trapping for the season. The attic was lined with drying skins, and they had even been compelled to hang some in the room over the shop. A close tally had been kept of the muskrats returned to the marsh, and notwithstanding the fact that there appeared to be more than ample supply of breeders for next season they were loath to further reduce the stock. After their



winter's study of trapping methods they were fully convinced that close trapping was directly responsible for the scarcity of the muskrat in thickly settled communities. Conservative trapping had enabled the Atlantic coast muskrat farmers to harvest a yearly crop of enormous value, and they were determined to follow their example.

The disposition of their catch of fur had been the subject of more than one discussion in the Woods' home. John, Jr., and Frank had been beset by fur buyers almost daily but had refused all offers.

One evening after a particularly flattering offer had been made which Mr. Woods had advised them to accept, John, Jr., said: "No, father, I'd a whole lot rather sell them myself and save the commission. You wouldn't think of shipping a car-load of valuable stock to market without accompanying the shipment and personally negotiating the sale, and I've come to the conclusion that that is the proper way to sell our furs. We have already sorted our catch to the best of our ability. We are going to bale the skins just as soon as they are reasonably dry and ship them to the city. Frank and I will accompany the shipment, taking with us a few samples of the various grades. We will call on the largest fur houses and get bids on the entire lot. In that way we'll be bound to get top prices. Besides we want to go through the fur houses and gain, at first hand, an insight into the actual sorting, buying and tanning of furs."

Mr. Woods, quickly realizing the educational value of such a plan, readily acquiesced and the proposed trip was arranged that evening.

Marketing and Plans for Future

A fortnight later John, Jr., and Frank arrived in the city with the furs. They immediately set out making the rounds with their samples. Fur buyers, fur garment manufacturers and tanners were visited and practically all bid on the skins. Several made nearly identical offers, so they were rather puzzled as to just which one to favor. After considerable deliberation they finally decided to accept the offer of a buyer who had shown a keen interest in them and their fur-farming experiment. The following morning the big bales were hauled up to his warehouse and opened in the presence of John, Jr., and

Frank. Then followed what they afterwards termed as one of the most interesting days of their lives.

Their furs were first carefully graded and counted. The boys paid close attention to this and were able to pick up some valuable information. The furrier congratulated them on their own grading and then proceeded to show them some of the trade secrets. Every phase of the tanning, plucking and dyeing end of the business was thoroughly explained. In the afternoon they were taken through the plant of a large fur garment manufacturer. Here the actual matching and tailoring of finished furs into the fashionable garments of the day was fully demonstrated. The fur buyer rounded out the long day by entertaining them at dinner at his club and later at the theatre.

Two happy and elated boys jumped off the train the next day and rushed for John Woods awaiting them at the platform with the gray team. Climbing over the sides of the wagon they greeted their father and began excitedly to relate their city adventures. John Woods held up his hands in objection.

"Hold your horses a moment boys," he said, "I've got several errands on my mind yet and you can tell me your stories on our way home."

An hour later they turned down the road towards home and the boys began the tale of their adventures. So engrossed did they become that, ere they realized it, the team drew up before the barn at home.

Final Figures Are Displayed

After doing justice to one of Mother Woods' famous suppers the whole family gathered around the table and John, Jr. and Frank recounted again their experiences, ending by placing on the table a certified check to their order, the figures of which brought forth a whistle of astonishment from John Woods.

"Well! that beats my expectations considerable," he finally managed to say, "How much did you get for those hides anyway?"

"Wait a moment Father," answered John, Jr., and he hurried upstairs, coming down presently with the file containing their accounts. This, he opened saying, "We might just as well balance our books now. Our two year period has several months to run but that will not affect our cash to any

great extent one way or the other." Going rapidly through the invoices and their bank account they soon prepared the following abbreviated statement of their receipts and disbursements for the period:

Disbursements	
Wire and nails	\$1,200.00
Posts	50.00
Boards (for stretchers)	20.00
Extra help	100.00
Trip to city	40.00
Incidentals	100.00
	<hr/>
	\$1,505.00

Receipts	
18 Skunk	\$ 153.00
11 Raccoon	99.00
18 Mink	336.00
1 Fox	18.00
306 Muskrats, No. 1	1,224.00
1802 Muskrats, No. 1 medium	5,406.00
487 Muskrats, No. 2	730.50
230 Muskrats No. 3 and 4	115.00
Sale of Muskrat meat	180.00
	<hr/>
	\$8,261.50

Less disbursements 1,505.00

Total profit \$6,756.00

John Woods read the statement aloud. His voice and his eyes reflected a pardonable pride as he concluded.

"Boys, I am proud of you. I never dreamed that your undertaking would turn out as successful as it has. If you had taken all the breeders that you returned to the marsh you would have doubled even these figures."

Reaching into his vest pocket he pulled out his big wallet and extracted therefrom several long, legal documents, and continued:

"Being as how this is somewhat of a surprise party, I'm coming out with a surprise myself. Here are the deeds for over a hundred acres of land along Seven Mile creek. This gives us control of the best part of the creek and ravine and two splendid stands of timber on the bluff."

Incredulously, John, Jr., gazed at him. "Why, dad, I thought you always said you pitied the persons who owned those small holdings along the creek. Only last summer I heard you make the remark that if the timber was cut off those hills the land wouldn't be worth \$5 an acre."

John Woods laughed. "Frankly, boys, I owe this reversal of opinion to you. We've done nothing in this household for the past year but talk fur, think fur and handle fur. If I take a book from the book shelves for a quiet hour's reading it's bound to be a treatise on trapping or fur farming or some kindred subject. Even the reading table is littered with trapping and hunting magazines. I've sure got the fever."

"I've come to the conclusion that there is big money in fur-farming and game breeding, if properly conducted in the right locations. I'm going to build a cottage down near the ravine for you, John," and turning he clapped that young man on the shoulder.

"Maybe you can induce that young lady you've been shamefully neglecting of late to share your trials and tribulations with you. You're going to have plenty of them. I have already ordered several pairs of domesticated red foxes to start on. When you think you have mastered their handling, we'll buy some silver foxes and go after the big money. We have also ideal locations for coon and skunk and you and Frank can start looking for breeding stock at once. We ought to be able to pro-

cure them on our own farm.

"If you keep up your present enthusiasm, there's no limit to what we can make of this farm, boys. We have an ideal location for all branches of game breeding. There is, I understand, great opportunities in rearing ring-neck pheasants and mallard and wood ducks, to say nothing of rabbits and possibly deer. Are you with me?"

The boys speechlessly nodded assent.

CORRESPONDENCE

Huntington, N. Y., November 3, 1921

American Fox and Fur Farmer
Utica, New York

Dear Sirs:—

You have an excellent magazine. It covers a space left vacant by the other magazines.

Yours very truly,
C. E. DOLL, D. V. M.

Calais, Maine, October 28, 1921.

American Fox and Fur Farmer
Utica, New York

Dear Sirs:—

We have taken great interest in your magazine and consider it one of the best publications on fox farming that has been offered to the public.

Yours very truly,
TODD & MOORE,
By N. L. Todd.

Michigan City, Ind., November 5, 1921.

American Fox and Fur Farmer
Utica, New York

Dear Sirs:—

Enclosed find check for \$6.00 for two separate subscriptions and I heartily endorse your effort in making the publication one hundred per cent. American.

Yours very truly,
HENRY SMITTER.

Amarillo, Texas, November 7, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I have received the sample copy of your valuable magazine and I want to say that I like it very much, and with the right push from the subscribers it will only be a short time until you have a long subscription list. I for one will do all I can to help.

Yours very truly,
H. D. FARLEY.

SEND YOUR \$3.00 NOW

Boost The American Breeder

SUBSCRIBE TO

American Fox and Fur Farmer

Annual Meeting of American Fox Breeders Association

Officers Elected--A Splendid Attendance--Matters of Interest
to All Fox Ranchers Discussed

THE Annual Meeting of the American Fox Breeders Association, held in Parlor 12, Parker House, Boston, on October 20, was a big success. Wasn't it? Yes it was! When the representatives of an infant industry, where the profits to be had are large, can meet at 10 o'clock in the morning, recess three-quarters of an hour from 1:30 to 2:15, and then keep at it until after 6 p. m. (the time limit the parlour was engaged for) and all come away from the meeting with a satisfied feeling, it augurs well for the purpose these same said representatives are out to accomplish.

Here is the gist of the whole proceedings—"Let's have an understanding, now is the time, and we are met here for a purpose," and so they were. Men with questions, men with answers, men with troubles, men with answers, men with proposals, men with answers, and all through the whole gamut of foxdom and fox lore, we had a great, grand open meeting! If a question arose that needed study, was it referred to a committee? NO! NO! NO! Let's thresh it out right here was the slogan. Anything and everything pertaining to foxes, from the "pup to the pelt" was taken care of, and every man present was given his opportunity to have his say, and there were men present at this Fourth Annual Meeting of the A. F. B. A., representing the United States Government, in the S. B. Fox Industry, the large ranchers with years of experience, and a fund of knowledge and experience, the wealthy fancier just for the love of the S. B. Fox itself, and the beginner. Just wish you could have been there with us and got your question answered or answered the other fellow's.

The Officers and Governors are full of pep after this showdown, and are hustling for the interests of S. B. Foxes. If you are not getting your Bulletins and letters, etc., from Headquarters, just drop us a line, it may be our fault and we don't know it. Just another little thing, somewhat personal perhaps, but will you please send to this office, any big or little ideas you may entertain, as to management of the affairs of the Association, ideas and experiences you think would help your fellow fox breeder, and also ask questions? Don't hesitate on the questions. The Secretary has to attend to that part, the affairs and idea part of this was voted at the last Governor's Meeting, the question idea was not in the vote. Don't be bashful (like the members and visitors attending the Annual Meeting?).

The following Officers were elected:

Samuel F. Wadsworth, President, 26 Cummington St., Boston, Mass.

Dr. Ned Dearborn, First Vice-President, 47 Falmouth St., Portland, Maine.

E. G. Pond, Treasurer, Needham, Mass.

George Brackett, Secretary, 229 Congress Street, Boston, Mass.

BOARD OF GOVERNORS

Clarence L. Robins, Utica, New York, term expires 1922.

George S. Tuttle, South Ryegate, Vt., term expires 1922.

A. W. Gray, Townsend Harbor, Mass., term expires 1922.

J. P. Duffus, 21 West 20th Street, New York City, term expires 1923.

Clarence M. Daniels, Sabattis, New York, term expires 1923.

William L. Lewis, Pomin's, Lake Tahoe, California, term expires 1923.

Robert T. Moore, 701 Drexel Bldg., Philadelphia, term expires 1924.

Harry B. Prescott, 259 Summer Street., Boston, Mass., term expires 1924.

M. S. Thompson, 101 Broad Street, Boston, Mass., term expires 1924.

Notes

Business men as a rule are not largely given to oratory or verbiage, but the words of praise and thanks these same men gave to the retiring officers who have served the A. F. B. A. were as heartfelt and struck the key-note of sincerity as fully as though given with flourish and pomp. This was shown by the rising vote of thanks and heartiness of applause which followed.

Lieut. Frank G. Ashbrook, the Silver Fox Man of the Biological Survey, again proved his right to the title of the "Right man in the right place." His part in the meeting was to furnish a talk on any subject he might choose himself; he not only was listened to with close attention, but when he said "ask me some questions," he had most of the members on their feet more than once, with a barrage of questions ranging from "why don't a fox have blue eyes" to "will a Sampson breed true," and Frank could and did tell 'em, or satisfied them anyways from every angle.

And Dr. Ned Dearborn, from New York State, formerly with the U. S. Biological Survey for over ten years and now raising high grade silver black foxes. When a fox rancher, or for that fact, any animal breeder learns that Dr. Ned is going to appear, you may rest assured said Rancher is going to be present if possible. What Dr. Ned don't know about animals, hasn't been learned yet. Ned always has the happy faculty of being able to express himself to the other fellow so that the other fellow understands fully, just what he is talking about. He says what he means, and means what he says, and after listening to Dr. Ned Dearborn talk, you generally know something that you didn't know before and to your advantage. He answered a lot of questions and his talk was an eye opener to many an old time rancher present. Yes, it was a great meeting at which the Scientist, Expert and Layman each had his turn.

We have had to get a lot more Applications for Registration printed. Volume two will soon have to be put on the Shelf. Do you know that there are eight different sets of papers on Registration? The ordinary kind, good enough, you know, for any self respecting fox with an ancestry behind him for three generations, be he either of Eastern or Alaskan blood. One each of them; that makes two, and it costs two too, to get one. Then there's the fox who is bound to show off, generally at the shows and fairs, if the official scorer awards him or her, 85 points or more, and it is on record and on file here at headquarters, where the gentlemen you elected to run the affairs of foxdom can look at it when they want to, why you can get missus or mister fox a what they call "Advanced Registration" paper with a gold seal, etc., all on it and explaining it to the Universe. One for each of them. Alaska and Eastern Blook, that's two more. This kind costs five each, and if you are going to advertise the fact that Mister or Missus Fox is some class, it's worth the five all right. Let me see, we've got four papers

now and I said there were eight. Oh, yes! This is how we get 'em. A fellow you all know well, been in the business a long time, judge, breeder, advertiser, ink slinger and everything, stands up in meeting and said he wouldn't give a hoot or something for a Registration Paper that didn't give Mister and Mrs. Fox's Pa's name, and the whole d——? families' names, and have it show right out on the paper too, so just to allow that he might be right, we all done and voted if a feller wanted all those names, he could have it if he handed over one more dollar, so I had to go get four more sets of papers with places made to put great aunts' and mother-in-laws,' etc., names on them. There's your eight. Take your choice for two, three, five or six dollars each.

Condenselets

Almost every day we hear of foxes being sold and trading. There seems to be more trading going on this year than in previous times. The rancher is getting around to visiting other ranches. By doing this he not only sees what the other fellow has got, but swaps fox ideas as well as foxes, all to a mutual advantage.

New members are coming in, Dr. G. V. Webster of Carthage, New York, our youngest member, ranches about seventy foxes, all registered stock. New Applications for Membership in the American Fox Breeders Association are now printed and every member has an extra blank on hand. You can secure a blank from any member of the A. F. B. A. if you wish. The new blank has the qualifications for Active and Associate membership, also the Objects of the Association printed on the back. The November circular letter contains condensed particulars of actions, and the late rulings of the Association and U. S. Government. Have you got yours? The London Auction Sales reported prices unchanged on Silver Foxes. There is a steady demand for good pelts in this country at the present time, at prices ranging from \$200 to \$500.

The newly elected officers are a little bashful in sending in their photos, but one of these fine days I expect I will be able to get a chance to let the ranchers who have not personally met them, get a glimpse of their photos. I can assure you that they are an extremely fine looking lot of men and every one of them capable, conscientious and reliable. Every membership card has a separate number. Some dealers in accessories to fox ranching give a discount to members holding paid-up membership cards in the American Fox Breeders Association, and we hope to have this discount available for the members in a still larger field.

Investigation has shown that wherever the co-called distemper has been found in ranches, that it has been attended to at once, and has not gone further. The Association does not want to, so are not holding a show. It is disappointing to everybody not to hold the Annual Show but when the Government Experts and Veterinarians don't know just what this so called distemper is or just how to control it, the members present at the meeting decided to wait awhile. So did the Canadians, and the Toronto show is called off also. We can hold a mid-winter meeting however, if all can find time, and that will be next best anyways. Will you come? Would like to get your idea of this holding a mid-winter meeting. We spoke to Lieut. F. G. Ashbrook and he thought it would work out finely around the holiday season. The Senate voted on November 1st to put fur articles of wearing apparel on the tax free list. There has been a ten per cent. tax in effect on manufactured furs, while there was no tax on silk, satin and velvet.

The balance of furs valued at about \$500,000, held by the International Fur Exchange of St. Louis, has been placed on sale in New York City. Half of the forty-two state legislatures in session this year enacted legislation relating to fur-bearing animals. The need for this is shown by the fact of its

having been estimated by raw fur purchasers that the decrease of the supply of peltries have been from twenty-five to fifty per cent. over a large area where the supply of fur and peltries originate. Preliminary reports by the Dominion Bureau of Statistics, state there were 13,405 S. B. Foxes valued at \$4,446,117. One thousand, one hundred and three foxes (patch) valued at \$87,735. Of foxes born in captivity, 9,219 were Silver, 788 Patch and 305 Red. Total value of fur-bearing animals sold from farms during 1920 were \$745,021 and value of pelts were sold amounting to \$383,835. Average values sold from each farm, live silver foxes ranged from \$100 to \$1,100, and silver fox pelts ranged from \$75 to \$750.

Prince Edward Island claimed 306 Fox Fur Farms in 1920, valued at \$3,018,870. Nova Scotia had 52 ranches. Just one thing more which is a foundation of fact for your plans. You can expect an increase of fifty per cent. in activity in your industry this season if your foxes are registered with and you are a member of the American Fox Breeders Association.

KEWEENAW PENINSULA IDEAL RANCH COUNTRY

The Upper Peninsula of Michigan north of the Portage Lake Waterways is practically little known among the fur farmers of the country and is probably greatly misunderstood by those whom are acquainted with it in only a passing manner.

Mining having been the one and only industry in this section since its discovery a century ago, the virgin timbers stand practically undisturbed by the ax of progress while in its forests roam many of the fur-bearing animals that the onward march of civilization has not routed from their quiet homes.

This section of the peninsula is about forty-two miles extending from Portage Lake to Keweenaw Point and is from five to fifteen miles wide, with Calumet, its metropolis, a city of forty thousand nestling peacefully on a plateau in the middle of the district. This northern strip is no longer a part of the peninsula proper, as the building of the Portage Lake Ship Canal has cut it off from the main land and makes it practically an island. North of Calumet the country consists of heavy timberland, swamps and rocky ground where game is abundant.

Here there are a line of greenstone cliffs running parallel with the peninsula with a long low slope to the lake broken by many streams and the finest highways in the state. The climate in summer is cool while from November until April it is cold. Many wonderful sites prevail along the foothills of these cliffs and especially ranch sites ideal for fox farming and breeding.

A farm was established some sixteen miles south of Calumet a few years ago and it is meeting with unusual success both in the life of the animals and length and quality of fur. This ranch is in a spot where the weather is even more mild than further into the peninsula north of Calumet and those interested in fur raising are looking ahead to the time, which is not far off, when this section will house many successful ranches.

The soil in this district in most places is quite shallow and close below the surface lies a heavy gravel or almost solid stone ledge making pen building a pleasure and decreases the danger of animals digging themselves out of the enclosures.

Anyone desiring information regarding this district can receive same without cost or delay by dropping a line to the Calumet Chamber of Commerce at Calumet, Michigan. This Chamber has helped others and stands ready to assist more in taking advantage of the unusual opportunities offered by the Calumet district.

Subscribe to the American publication for the American breeder.

Notes of National Silver Fox Breeders Association

By J. E. Smith, Secretary

EVERYTHING is pretty well set for the show but the committee is on the jump every minute looking after details. We have secured Dr. Ned Dearborn, Sacketts Harbor, New York, Mr. George S. Tuttle, South Ryegate, Vermont and Mr. Robert A. Pfeiffer, Detroit to act as judges.

The program will contain sixty-four pages of reading material and advertising. The first installment has already gone to the printer and it is planned to have the program completed the latter part of the month. The program will contain list of officers, directors, show committee, judges and the veterinary inspector who will be Dr. Karl B. Hanson of Keesville, New York. Dr. Hanson is being detailed by the Bureau of Biological Survey to examine all entries before they are allowed to enter the exhibition hall. This should remove any fear that the exhibitors might have of their foxes contracting disease.

Dr. J. A. Allen, the Canadian Veterinary Inspector of Silver foxes will also be present at the show and will be prepared to give a lecture on the diseases of foxes, their prevention and cure. This lecture alone should be worth coming a long ways to hear. Dr. Allen is undoubtedly the best posted man on the fox industry in regard to diseases and their treatment. There will be a number of other very prominent speakers on various phases of the industry. No one can afford to miss the opportunity of hearing these matters discussed by men who are authorities in their various lines.

The secretary is being rushed taking care of eleventh hour entries. The entries close to-morrow, the 10th, and it seems that everyone has been putting off making out their entries until the latest possible date. It appears that we may have to request some of the larger exhibitors to withdraw a few of their entries in order to give every one an opportunity to exhibit. The following have made entries so far and it is expected many more will be entered before to-morrow night:

J. S. Chastek, Glencoe, Minnesota; E. L. Ransford, Muskegon, Michigan; F. F. Tuplin, Alpine, Michigan; Frank Burns, Grand Rapids, Michigan; A. L. Williams, Muskegon, Michigan; Mrs. Mary Simes, Sparta, Michigan; F. M. Anderson, Muskegon, Michigan; Lake Superior S. B. Fox Co., Houghton, Michigan; Pardo C. Light, Muskegon, Michigan; Claude Cole, Muskegon, Michigan; Allegan County S. B. Fox Co., Allegan, Michigan; West Michigan Silver Fox Co., Muskegon, Michigan; Calumet Silver Fox Co., Sherwood, Wisconsin; Gerrit Van Allsburg, Muskegon, Michigan; Mona Hill S. B. Fox Co., Muskegon, Michigan; C. M. Daniels, Sabattis, New York; Adirondack Mountain S. B. Fox Co., Remsen, New York; Cass Lake Silver Fox Co., Cass Lake, Minnesota; Poulin & Carl, Muskegon, Michigan; Marsh & Cannon, Muskegon, Michigan; Thomas Wood, Muskegon, Michigan; Dick Vandersteldt, Muskegon Heights, Michigan; Great Lakes S. B. Fox Co., Muskegon, Michigan; VanDonkelaar Bros., Muskegon Heights, Michigan; William Ramm, Twin Lake, Michigan; Rest Island Silver Fox Ranch, Lake City, Minnesota; Wausau Silver Fox Ranch, Wausau, Wisconsin; Alaska Silver Fox Farm, Lake Placid, New York; J. D. Ross, Muskegon, Michigan; Riverside High Point S. B. Fox Ranch, Muskegon, Michigan; Martin Moon, Brunswick, Michigan; Volmari & Hughes, Muskegon, Michigan; Grand Traverse S. B. Fox Co., Traverse City, Michigan; East & De Vries, Muskegon Heights, Michigan; Sheffield Silver Fox Co., Northampton, Massachusetts; C. E. Lyddick, Buchanan, Michigan.

Program will also contain the premium list, a list of all

entries with the owners, an interesting article on the silver fox industry, its past and future and information that will be of interest to fox breeders and prospective fox breeders as well as the general public. It will contain a directory of the members of the National Silver Fox Breeders Association and a summary of the by-laws of the association, its objects and information regarding the scoring of foxes for advanced registry, etc. The booklet will be illustrated with photographs of foxes and a number of fox ranches.

The Greater Muskegon Chamber of Commerce is taking a great interest in the coming show and has appointed a committee of seven of the most prominent citizens of Muskegon to assist in putting the show on in the best possible manner. It will do all it can to entertain the visiting fox men by putting cars at their disposal so that they may visit the ranches in the vicinity of Muskegon and show them a good time in general.

As the Muskegon show will be the only fox show held this year, a very large attendance is anticipated. From letters received from various parts of the United States and Canada, we assume that there will be a great number of fox ranchers attending who otherwise would have visited the other shows had they been held.

The annual meeting of the national association will be held during the show at which time new officers and directors will be appointed for the coming year. At the rate new applications for membership are coming in the association will have a very large roster at the time this meeting takes place.

The Chamber of Commerce of Muskegon is donating a large silver cup as one of the sweepstakes prizes. This cup as well as the one offered by the National Association must be won three years by the same exhibitor before it becomes his permanent possession. This cup will be worth working for as it will be something that the owner will prize very highly.

There will be a number of exhibits other than the live silver fox exhibits. J. S. Chastek will be on deck with some of his Alaskan blue foxes, while some of the other exhibitors will show some crosses, reds and gray foxes. There will also be some exhibits of silver fox pelts which should be very interesting to the general public. It is planned to have a fur judging contest during the show and each fox breeder will be given an opportunity to determine what kind of a fur judge he is. This will be conducted by an expert fur man who will point out the features that determine a good pelt.

The secretary has just returned from a ten day trip thru Wisconsin calling upon the majority of ranchers in the eastern part of the state. He was surprised to find the industry so flourishing and so many prominent men becoming interested in the business. Financiers heretofore have been rather skeptical about the stability of the industry and have been reluctant about investing. They have discovered, however, that the business when conducted on the right basis is as legitimate and profitable a business as any other, if not more so and are beginning to get interested.

The following ranches were visited on this trip:

The Cedarburg Ranch at Cedarburg; A. H. Krause, Oshkosh; C. C. Welling, Pebbles; the Fromm Bros., Hamburg; Herbert Fromm, Hamburg; Neeman Bros., Hamburg; Wausau S. B. Fox Co., Wausau; Frank Beste, Mosinee; W. J. Boston, Stevenspoint; Marathon S. B. Fox Company, Marathon; Calumet S. B. Fox Co., Sherwood; and the Cain & Henchel Ranch at Elkhart Lake.

A great deal of time was spent investigating the Fromm stock, which was found on practically every ranch visited. The secretary was very much pleased with this stock when he was in Wisconsin last summer, but at that time of year it was hard to determine just what it would be when prime. On this last trip all his former contentions proved to be correct as it was found that the Fromm stock is equal to any other strain of foxes in regard to length and density of fur and was found to be a larger, hardier and more prolific strain than the average run of foxes. The thing that impressed the secretary as much as anything else was the fact that nearly all the foxes had large white tips and long full brushes. Some experiments have been carried on by the Fromm Bros. and Neeman Bros. in crossing the Fromm stock with a good grade of Standards and the results were most satisfactory. In many cases the progeny of the first cross proved to be superior to the parents.

Fromm Bros. are the pioneer fox farmers of Wisconsin, having started in the business about ten or twelve years ago and ever since that time have given the subject considerable thought and study with the result that they have established a strain that is hard to beat. They have given special attention to increasing the prolificacy of the strain and in this they have been very successful. Some of the ranches having the Fromm stock have produced litters of ten and eleven and quite frequently litters of nine. Litters of seven are very numerous and very seldom do they have a pair that fails to breed. Their original stock came from the wilds of northern Wisconsin, Peace River district, Yukon territory and interior Alaska. Recently they have imported a number of standard foxes from P. E. I. and are crossing these with their own stock and as mentioned above the results have proven to be very satisfactory.

NEW YORK RESULTS

We beg to report the results of our Fall Sale, says the New York Fur Auction Sales Corp.

The offering came on a strong market and was satisfactorily disposed of with but some small exceptions. In general the quality of the offering was above the average. Foreign buying shows an increase; quite a number of direct orders having been executed. Clearances are at a record figure, and are proceeding satisfactorily. The fine Alaska and Northwest Canada collections were particularly interesting to the trade on account of the shortage in, and demand for, fine goods. Staple articles did well, these also being in short supply on the open market.

The carry over from last season's collections will undoubtedly be the smallest for very many years, and there are indications of next season opening with high prices. We would point out, however, that to-day's prices with the present short supplies are no criterion for a safe and sound basis for the new catch.

Our Winter Sale is scheduled to commence on February 20, 1922; the closing date of our warehouse will be January 21, 1922. The Spring Sale will commence on April 24 next. The usual advances will be made on approved shipments when desired. We invite inquiries from prospective shippers.

Quotations are based on comparison with our Spring Sale of April last.

The summary follows:

BADGER—(2,873 skins.) Declined 15 per cent. A poor collection which sold readily.

BEAVER—(6,276 skins.) Advanced 10 per cent. A good collection which sold readily at the advance.

BEAR, BLACK—(662 skins.) Advanced 25 per cent. Sold well for export orders.

BEAR, BROWN—(81 skins.) Unchanged. In poor demand.

BEAR, GRIZZLY—(60 skins.) Advanced 50 per cent. Sold well for export.

BEAR, POLAR—(8 skins.) These few skins sold at fair prices.

CHINCHILLA—(926 skins.) Declined 10 per cent. A fair collection mostly bastards; sold fairly well, the finest skins being in best demand.

HOUSE CAT—(20,202 skins.) Unchanged. A fair collection bought principally for export.

CIVET CAT—(45,713 skins.) Unchanged. Mostly stale skins. In small demand.

WILD CAT—(20,571 skins.) Declined 10 per cent. A fair collection containing a proportion of good lynx cats; this article is still neglected.

RINGTAIL CAT—(4,788 skins.) Unchanged. A fair collection which sold well.

ERMINE—(120,253 skins.) American advanced 20 per cent; Russian advanced 10 per cent. A fair collection. This article continues to sell well, the American being bought chiefly for export.

FISHER—(320 skins.) Advanced 20 per cent. A fair collection; the better skins meeting with strong competition.

FITCH—(24,377 skins.) German no change; Russian advanced 10 per cent. A fair collection which sold well.

BLUE FOX—(118 skins.) Advanced 25 per cent. This small collection of Alaska skins of good quality sold very well.

CROSS FOX—(398 skins.) Advanced 30 per cent. A fair average collection which sold well to European buyers.

GREY FOX—(8,614 skins.) Advanced 15 per cent. A fair collection. This article is in moderate demand.

RED FOX—(19,856 skins.) Unchanged. A good age collection; sold well, particularly the fine Kamchatkas.

SIVER FOX—(169 skins.) Black unchanged; fresh clear skins advanced 30 per cent. A collection somewhat below the average, which sold well, especially the fine clear skins, which brought good prices.

SUNDRY FOX—(18,079 skins.) Small interest was displayed in this mixed collection and the article continues in poor demand.

WHITE FOX—(2,965 skins.) Advanced 20 per cent. An excellent collection containing a large percentage of fine Alaska and Northwest Canada skins, which met with good demand. The stained skins brought high prices.

AUSTRALIAN FOX—(39,674 skins.) Declined 10 per cent. An average collection; demand continues limited.

KOLINSKY—(23,309 skins.) Unchanged. A poor collection, mostly Chinese; rather neglected.

PERSIAN LAMB—(29,257 skins.) Declined 20 per cent. The better grades sold; lower grades still neglected.

SHIRAZ—(10,211 skins.) A poor collection.

LEOPARD—(176 skins.) Advanced 20 per cent. A fair collection which sold readily.

LYNX—(1,029 skins.) Advanced 15 per cent. This small but good collection sold well.

MARMOT—(58,272 skins.) Declined 10 per cent. An average collection which sold moderately well.

BAUM MARTEN—(1,075 skins.) Advanced 15 per cent. An average collection of German skins which met with strong competition and sold well.

JAPANESE MARTEN—(2,056 skins.) Advanced 30 per cent. A good collection which sold well.

STONE MARTEN—(2,763 skins.) Advanced 15 per cent. A good collection with some lots of very fine German skins which brought high prices.

MARTEN—(8,208 skins.) Advanced 10 per cent. An excellent collection mostly fine Northwest Canada skins. The large pale skins brought high prices on account of manufacturers' competition; prices on natural colors were below expectations.

MINK—(20,458 skins.) Advanced 20 per cent. An ex-

cellent collection containing some fine Labrador and large percentage of Northwest Canada and Alaska skins. In good demand and sold well.

JAPANESE MINK—(21,416 skins.) Advanced 30 per cent. A good collection which sold well at satisfactory prices.

MUSKRAT, BROWN—(345,457 skins.) Advanced 30 per cent. A good collection chiefly Canada and Alaska skins, which sold at satisfactory prices.

MUSKRAT, BLACK—(3,308 skins.) Advanced 10 per cent. A fair collection which sold well.

MUSKRAT, SOUTHERN—(49,460 skins.) Advanced 50 per cent. A small collection below the average which brought high prices.

MOLE—(837,032 skins.) Unchanged. A rather poor collection, which sold fairly well.

NUTRIA—(70,754 skins.) Declined 40 per cent. A good collection; in fair demand at the decline.

AMERICAN OPOSSUM—(258,368 skins.) Declined 10 per cent. An average collection; demand has improved at present levels.

AUSTRALIAN OPOSSUM—(36,529 skins.) Declined 15 per cent. A fair average collection; met with declining demand.

RINGTAIL OPOSSUM—(54,776 skins.) Declined 25 per cent. A poor collection in which little interest was displayed.

OTTER—(1,120 skins.) Northern advanced 20 per cent; Southern advanced 40 per cent. A fair collection of all sections; the Southern skins met with spirited competition and sold at high prices.

RACCOON—(36,900 skins.) Northern advanced 20 per cent; Southern advanced 35 per cent. An average collection which met with strong competition on account of manufacturing demand.

RABBITS, AUSTRALIAN AND NEW ZEALAND—(322,627 pounds.) Compared with our May Rabbit Sale: Unchanged. Sold readily, all grades bringing prices more or less in excess of the open market.

RUSSIAN SABLE—(1,093 skins.) Advanced 20 per cent. A fair collection of all sections with some fine Kamchatkas which continue in strong demand and sold well.

ALASKA SEAL, DRESSED AND DYED—(563 skins.) Sold at the market.

HAIR SEAL—(2,849 skins.) In slow demand.

SQUIRREL—(85,492 skins.) Advanced 10 per cent. A small but good collection which sold well.

SKUNK—(139,392 skins.) Eastern advanced 30 per cent; Northern advanced 25 per cent; Southwestern advanced 30 per cent. A good average collection containing several fine Eastern and Northwestern strings, which were eagerly competed for. All sections sold well.

WALLABY—(14,398 skins.) Declined 25 per cent. Remains neglected.

WOLF—(36,335 skins.) Northern advanced 30 per cent; Southern advanced 25 per cent. A fair average collection which sold well at below recent market levels.

WOMBAT—(4,975 skins.) Advanced 50 per cent. A fair collection; showing improved demand.

WOLVERINE—(161 skins.) Advanced 10 per cent. A small collection which sold well.

The following quotations indicate the low and high prices paid at the New York Auction Sale:

	Low Price	High Price
Fisher	\$20.00	\$156.00
Stone marten	13.25	24.25
Baum marten	.95	23.50
Otter	8.00	34.00
Lynx	2.75	37.50

	Low	High
Ermine	.08	1.75
Mole	.01	.12½
Muskrat— Black	1.60	1.70
Southern	.15	.76
Brown	.32½	2.50
Wolverine	2.00	16.00
Russian sable	11.00	205.00
Black bear	4.00	16.00
Brown bear	2.00	8.00
Polar bear	3.00	53.00
Grizzly bear	1.00	32.00
Wolf	.55	11.00
Timber wolf	2.50	26.00
Red fox	.75	24.50
Monkey	.05	.30
Beaver	3.00	30.50
Badger	.10	1.30
Gray fox	.30	2.20
White fox	11.00	37.50
Cross fox	6.00	125.00
Silver fox	19.00	330.00
Sea otter	250.00	375.00
Blue fox	45.00	185.00
Skunk	.40	5.25
House cat	.02	.32
Ringtail cat	.03	1.30
Leopard cat	.40	.60
Marmot	.02	.60
Hair seal	.90	1.30
Pony	.02	.30
Marten	5.00	65.00
Japanese marten	4.50	7.50
Japanese mink	.35	1.65
American opossum	.02	.98
Aus. and N. Z. rabbit	.14	1.42
Rabbit, each	.....	.06
Rabbit, pound	.08	.42
Hare	.02	.16
Australian opossum	.25	3.00
Tasmanian opossum	.....	2.25
Ringtail opossum	.40	3.00
Wallaby	.03	.45
Wombat	1.00	1.15
Australian fox	.07	2.65
Kangaroo	.01	.10
Leopard	2.50	8.50
Chinchilla	11.00	88.00
Mink	.50	15.25

The last day of the auction held particular interest on account of two items—squirrel and raccoon. The latter went well and was in demand at good prices. Squirrel also brought good prices, although it was not as good a collection as expected.

The windup of the sale brought the following high and low quotations:

	Low	High
Kolinsky	\$0.42	\$ 2.70
Fitch	.16	1.95
Civet cat	.11	.42
Nutria	.25	2.70
Persian lamb	2.75	3.50
Broadtail	.03	.60
Shiraz	.05	.44
South American and Mongolian lamb	.05	.23
Wild cat	.30	5.00
Alaska seal (dressed and dyed)	21.00	48.00
Raccoon	.10	8.30
Squirrel	.....	1.44

RANCH EQUIPMENT

Copyright Applied for
By GEORGE A. JEFFREYS
Sacketts Harbor, N. Y.

A MOST important part of ranch construction is equipping the ranch after the yards are built, with the necessary facilities for cooking and keeping foods and various appliances necessary for the maintenance of the ranch. In fact the kind of equipment may spell the success or failure of a fox ranch. Efficient equipment means more healthy and more vigorous foxes and consequently greater prolificness, which in turn would pay for such equipment many times over.

There is at present much diversity of equipment. While some ranches use double boilers, others have steam cookers, and still others mere stock cookers. There is also much diversity of opinion in regard to the same equipment. The bonecutter for instance, some ranches do not care for it while others are using it to produce prize winning foxes.

After careful consideration only that equipment is advocated that is a labor saver, or is necessary for the health of the animals, or for the successful maintenance of the ranch.

Feed Dishes and Holders

These are the simplest but most necessary form of equipment. The size and material varies greatly in many ranches.

The ideal dish should be of the size and material that will permit easy handling, easy cleaning, and easy placing in a simple dish holder. This form of dish is to be had in a one quart granite basin. The dish can be easily kept clean and the projecting edge enables the dish to be held in a simple wire dish holder.

Dish holders are an essential equipment from a sanitary standpoint, especially in a large ranch. A dish held fourteen inches above the ground will prevent the fox from soiling it and will also keep it out of the snow drifts. Individual dish holders are the best because the dishes can be placed farther apart and so prevent the foxes from getting into a fight over the food.

A simple wire dish holder can be made from a piece of No. 10 or 12 wire, that will hold a granite basin tightly in its clasp at any desired height, and yet be easily removed by the keeper. Fig. 1 shows the construction of this dish holder, and fig. 2 shows it in operation.

Nails and staples may be driven into a plank for a form around which the wire may be easily and quickly bent. The total length of the wire for a one quart basin with a $7\frac{1}{2}$ inch top is 62 inches. First the wire is bent sharply in the middle to form a double strand. The connected end of the wire is then bent twice to form a double strand. The connected end of the wire is then bent twice to form the hook SH and H, the angle of A being about 40 degrees. From A the wire is twisted for a length of 16 inches to the point B. The notch N is bent $\frac{3}{4}$ of an inch deep and is made to fit the edge of the basin. At the point D the strands are divided and bent in a circular shape to fit around the basin underneath its flange. The ends of the wire e e are bent into hooks. These end hooks are just long enough to project over the edge of the basin after being hooked thru the fence $3\frac{1}{2}$ inches apart.

The hook H should be long enough to fit two meshes of fence wire. The angle at A should be wide enough to hold the form out from the fence and keep it from collapsing. To set the holder up the hook SH and H should be first inserted thru a mesh in the fence and hooked on the outside. The ends e e may then be hooked thru the fence. The basin may be removed

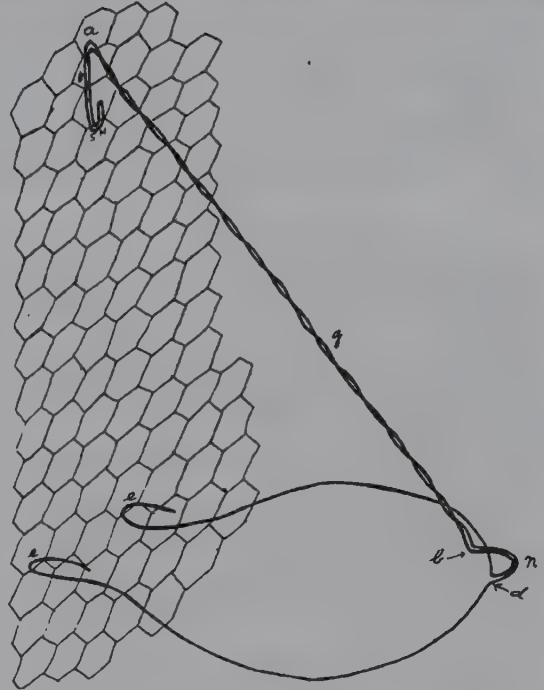


Fig. 1—Wire Dish Holder

from the holder by simply grasping the twisted wire at g and pulling gently and at the same time pulling out the basin which will snap out of the notch at N.

Water Fountains

The chief points desired in a good water fountain is one that will: first, keep the water shaded; second, keep it cool thru hot weather; third, prevent it from being soiled; fourth, that will permit easy cleaning; fifth, and one that will withstand freezing weather.

Without going into discussion of the various forms used, the following one is described which embodies all the above points. This fountain is simply a concrete form which holds an enameled bowl, and the whole is enclosed in a small bottomless square box with one side open. Fig. 3 shows a cross section of the concrete form holding a bowl.

This concrete form may be easily cast by taking any piece of tin 3 feet long and 6 inches wide. The tin is placed on a flat surface and held in place by two bands of wire. A sloppy mixture of concrete is poured into the form within a couple of inches of the top. The bowl is now pressed down into the center of the mixture until its edge comes flush with the cement. It is desirable to have the edge of the bowl a half an inch lower than the top of the concrete to prevent the foxes from getting hold of the dish. To accomplish this a strip of tin may be

placed around the edge of the basin to keep the cement from pouring into the bowl while it is pushed a half an inch farther down.

This concrete form is housed over by a bottomless wooden box 12 inches square, and about 10 inches high. One side of the box is left open. The roof of the box is 4 to 5 inches above the bowl. This keeps the sun out and prevents the foxes from crawling bodily over the bowl and soiling it. The enameled bowl should always be present in the concrete form, thru the summer months. The bowl can be easily removed for cleaning at each watering. The concrete in contact with the earth keeps the water cool in the hottest weather, while toward freezing time, the enameled bowl can be removed and only the concrete form used. The bowl shape will prevent the ice from cracking the form.

Food Cookers

There is no other equipment on the ranch, that is of such vital importance as good equipment for cooking food. A good food cooker will pay for itself many times over in health and vitality of foxes.

Feeding experiments have shown, that grains not properly or thoroughly cooked are irritating to the intestines of a fox. For this reason grains or cereals should not be cooked directly over a fire, but either in a double boiler for a long time, or by steam under low pressure.

Cookers may be divided into three classes, double boilers, steam cookers and pressure cookers.

The double boiler is used most conveniently on ranches not having over 25 pairs of foxes. For ranches larger than this the steam cooker is more convenient, as it is able to cook a larger quantity of food at the same time.

The food pan of the double boiler should be heavily retinned and have a capacity from 6 to 10 gallons. A galvanized pan should not be used.

Steam cookers are able to cook over a half a barrel at a time. The receptacle in which the food is cooked should be either heavily retinned, enameled or made out of aluminum.

Cooking under pressure, shortens the time and labor and produces food more nourishing and less irritating to the fox. Steam under low pressure can be applied into the receptacles where cereals are cooked either in a double boiler or steam cooker. The cover of the pan should fit tight and be securely screwed and clamped into place. The cover is equipped with a steam valve which can be adjusted from 2 to 15 or more pounds pressure. It is also equipped with a pressure gauge and a pet cock for letting out the steam before opening the cover.

Pressure cookers can be purchased from any large hotel

supply dealers. Steam cookers can be purchased from any large mail order house.

Meat and Bone Cutters

A meat and bone cutter is an indispensable piece of machinery. Ground meat mixed with mush or cereals makes the ration more nourishing and muscle building. A home made biscuit can be made, having a content of 30 to 50 per cent. ground meat. This biscuit can be dried and in this way the meat is preserved for the summer. Meat cut in coarse pieces can be fed to growing pups. In this manner each pup has a chance of getting his share.

Meat cutters should be run by power. The power should be communicated thru a shaft overhead, the shaft being long enough to run other machinery. Three sizes of perforated plates should be had for cutting meat, fine, medium and coarse. The coarse plate should have holes at least one inch in diameter.

There is no other equipment on the ranch that can yield such powerful influence for health, muscle and bone building in growing foxes and pregnant mothers as a good bone cutter. Some ranches do not care for it, while others are using it as a regulator, and produce prize winning foxes.

Green bone when not too old is more or less digested in a fox. The hard white manure often passed by a fox when bones are fed is evidence of this fact. There is no more danger from bone splinters in green cut bone if a good bonecutter is used, than there is in feeding chunks of old bone. The foxes will chew and break off pieces of bone and swallow them. These pieces and splinters of bone are often passed out in the feces when chunks of bone and meat are fed. Without a bone cutter a large part of the bone is not available to the foxes but is thrown out as waste.

A good make of a bone cutter is made by F. W. Mann Co. of Milford, Mass. A combined power and hand bonecutter should be had. The machine may be driven from the same shaft as the meat cutter. In grinding bones from old animals the bones should be stood up on end so that the knives will cut across the grain and so prevent any splintering. Meat and bone can be cut together in the winter time. First cut the meat and bone into suitable chunks to fit the bonecutter, then allow to freeze solid. The meat will now grind with the bone without clogging or splintering.

Bake Ovens

Only a few ranches are equipped with a bake oven. For a variety, nothing is more nourishing or appetizing than home made biscuit and milk. A bake oven is another equipment that will materially reduce the cost of feeding. Boughten biscuit cannot be depended on, but home made biscuit and bread can be made to suit the needs of the animals. As much as 30 to 50 per cent. ground meat and bone can be mixed into the biscuit. The biscuits may be dried and so kept indefinitely. The oven may also be used as a drying apparatus for drying biscuits. The biscuits are placed on the oven shelves in tiers, with an inch air space between tiers. A slow fire is then kept up until biscuits are dry.

The best oven is one that is portable, made of sheet steel and galvanized iron. The Blodgett ovens are of this type and can be purchased anywhere. Sometimes a second hand oven can be picked up at a reasonable price. A four shelf oven will have a capacity of about 50 loaves of bread. This size will not take a larger space than 2½ by 3 feet.

Mixing tubs of about 10 to 15 gallons are desirable for mixing the biscuit dough. No mixing machine is necessary as one man can mix enough dough in ten minutes, to feed a hundred foxes.

When dry biscuits, with a high content of meat are to be stored for the summer, bins must be built that are beetle proof.



Fig. 2—Wire Dish Holder in Operation

The bins can be built of matched boards with tight fitting covers. The bins should be either lined with a lining metal, or they may be painted on the outside by an insect proof paint, such as carbolineum. The cover of each bin should have a 2 inch hole covered with a fine screen for ventilation. Bins of similar type should also be built for storing grains and cereals.

Sink and Washing Outfit

It is essential to have a sink and plenty of scalding water. If there is no water system, the rain water from the roof can be conveyed into a large galvanized tank situated overhead the sink.

It is desirable to have hot running water at the sink. The water can be heated either in a hot water tank by means of coils heated by kerosene, or with a hot water front in a stove, or by running the water into a stock pot and heating it then on a stove or with steam from the steam cooker. The stock pot with the drain faucet at its bottom should be placed over the sink.

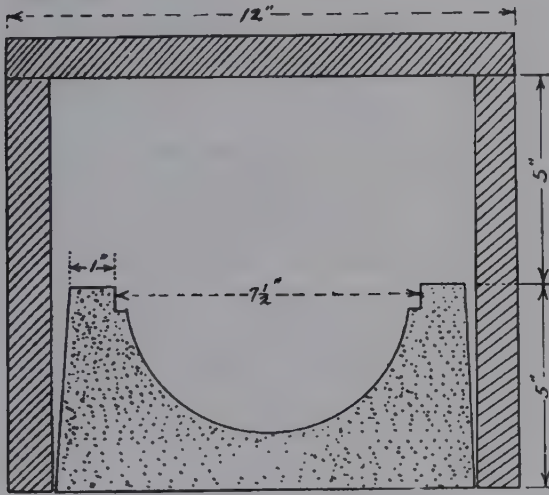


Fig. 3—Cross Section of Concrete Water Fountain

The dishes should be scalded and not merely washed in warm water. In the last case the germs are merely churned, mixed and distributed evenly over all the dishes. The dishes should be washed in running hot water one at a time. Another good way is to place the dishes in a tank of boiling water fitted with a wire basket. After several minutes boiling, the dishes can be taken out with the wire basket and rinsed in the sink under running hot water.

There are a few minor accessories for the cook and meat house, these are as follows: Galvanized pails, milk pails, mixing spoons, one and two quart dippers, sink and dish brushes, skinning knives, one sticking knife, sharpeners, meat saw with several blades, meat cleaver, meat hooks, one good chopping block, and scales for weighing up to 100 pounds or more.

Buildings

Fig. 4 shows the plans for a cook, shop and meat and slaughter room combined under one roof. The building should be well built and fly proof. The floors should be of concrete. By all means there should be as many windows as possible. All windows and doors should be screened for the summer. The cook room is placed on the end and is well lighted by many windows. By taking the windows out a cool ventilated place can be had in hot weather. The cooker and oven are placed in

the middle opposite the sink and table, while the grain bins line the side.

The shop room may be placed between the cook and meat room. It should never be combined with the cook room, as paint, gasoline, nails, etc., endanger the food. The gasoline engine may be conveniently located in the shop. The various machines may be run by means of a shaft running thru one side of the building.

The meat and slaughter room should be provided with a good drain in the floor. A beam should be provided overhead in the center for attaching pulley blocks or other levers for slinging up slaughtered animals. At one end of the room is situated the refrigerator box, a strong bench with the meat cutter, a chopping block and the bone cutter.

If ice is used as a means of keeping meat, then an ice house can be built either on the end of the building next to the meat room or separate in some other convenient place.

Refrigerators and Coolers

One of the biggest problems the fox ranch has to contend with, is keeping a fresh supply of meat on hand thru the summer months. Many losses have been sustained on fox farms due to improper keeping of foods and feeding tainted meat. It has been shown by Prof. Schneider of Columbia University,* that the greatest danger of food poisoning lies in the commencement of decay rather than at its highest point. Maximum toxicity is soon reached after food has started to decay, then further decomposition changes the result in actual reduction in toxicity. The terrific stench arising from rotten meat, serve as a sign to scavenger animals, as the buzzards, that the danger period of toxicity has passed, and that it may now be eaten without danger.

Every ranch should be equipped with a good cooler, cooled either by ice or preferably by mechanical refrigeration.

A ranch can keep its supply of meat alive on foot in a pasture as old horses, cows and sheep, and butchering them as needed, and then keeping the carcass in an ice cooler until used. By this method meat should not be kept in a cooler for more than five or six days in hot weather. The ranch must be large enough to use up a carcass in that time. The smaller ranches can use smaller animals as sheep, rabbits, etc., or by purchasing their meat from a slaughter house or butcher. Ice coolers for the above method should be just large enough to hold one or two horses or sheep.

By far the best method of keeping meat is by mechanical refrigeration. By this method meat and food can be kept a long time without decay. All uncertainty of keeping meat is done away with. There are no ice houses to build, and no cutting and storing of ice. Meat can be procured at a convenient time and kept indefinitely.

The cost of an ice house would almost pay for a refrigerating outfit. Refrigerating machines of the enclosed type are made in various sizes by the York Mfg. Co. of York, Pa. The smallest has a capacity as low as $\frac{1}{4}$ ton. Medium size ranches and even small ranches can be equipped with a refrigerator to suit its needs.

A $\frac{1}{4}$ ton refrigerating machine would handle a refrigerator box of 200 cubic feet. A gasoline engine to run this would be $1\frac{1}{2}$ H. P. A $\frac{1}{2}$ ton machine would handle a box of 400 cubic feet, or a box 8 ft. x 5 ft. x 9 ft. and a one ton machine would handle about 700 cubic feet. The engine required to run these would be 3 and 4 H. P. respectively. The cost of these three machines delivered and set up are \$1,200, \$1,500 and \$1,700.

A ranch having an ice house would have the annual cost of having the ice cut, hauled and packed in the ice house. This would more than pay the expense of running the refrigerator

*—Sneider's Microbiology of Foods

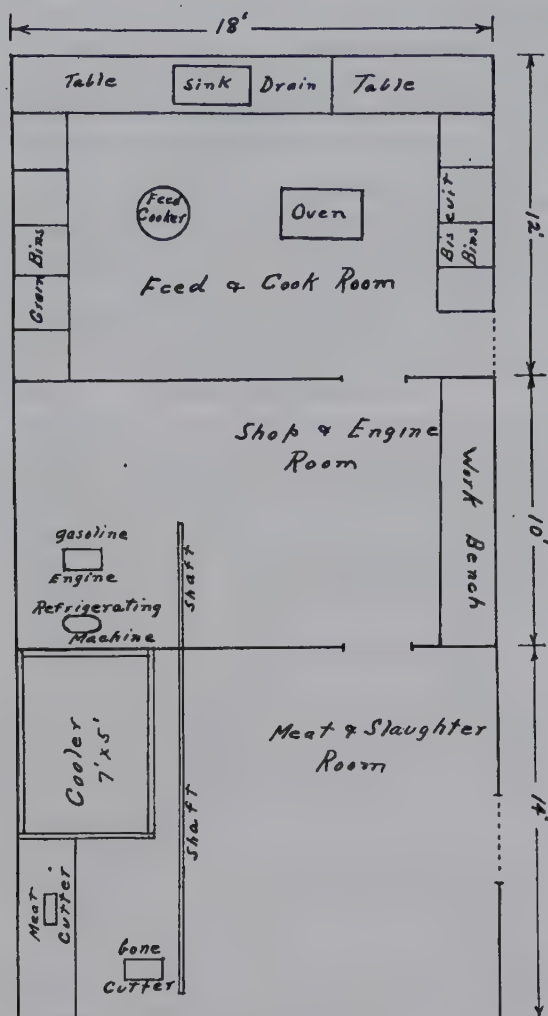


Fig 4—Cook, Shop and Meat House

for the whole year. The average monthly cost of running a $\frac{1}{2}$ ton machine should not be more than \$10.

Miscellaneous Equipment

There are a number of small appliances which are more or less needed on every ranch. Catching boxes permit easy transfer of animals from one place to another. A box can be made 7 in. x 8 in. inside measurements and 3 ft. long. Both ends should have slide doors. One end of the box is made to fit the spout of a den. The fox is driven from the den thru the chute into the box.

Catching tongs are almost indispensable. Many ranchers use steel tongs but the writer prefers wooden tongs made from medium hard wood. The foxes do not break their teeth on wooden tongs as they do on those made of steel. A diagram of wooden tongs is shown in fig. 5. The inside conformation of the jaws when closed should be circular with a diameter of $2\frac{1}{2}$ inches for an adult fox. When open the ends of the jaws should at least be 5 inches apart. To obtain this the fulcrum

should be nine inches from the tip of the jaws. The total length of the tongs is thirty inches. From the fulcrum the handles should naturally curve toward each other, so that they can be grasped with one hand. At the point of intersection the handles should be mortised so that the jaws will be on the same plane.

Dipping tanks can be easily made out of galvanized tin. The tank should have the shape of a bath tub, one end having a slope of thirty degrees. The dimensions of an average tank is 36 inches long, 20 inches wide and 14 inches deep.

An apparatus for stretching pelts may be either purchased from a fur supply house, or they can be easily made from smooth boards one inch thick. The type with a long wedge running thru the center is the one most used.

When foxes are pelted some sort of a killing box is necessary. The method which has given the best results is chloroforming the animal in an air tight box. The box is constructed on the principal of a catching box only smaller, 6 x 7 x 30 inches. On the side of the box at each end, a wire mesh pocket should be attached large enough to hold a handful of absorbent cotton. A $\frac{1}{2}$ inch hole should be bored thru the top of the box directly above each pocket. After the animal is closed in, a funnel is placed in the hole and an ounce of chloroform is poured into the absorbent cotton. The hole is then tightly corked. Death should ensue in a few minutes.

Every ranch should be equipped with a few surgical instruments. The following will be found very useful: 1 scalpel, 1 pair extracting forceps, 1 automatic clamping forceps, 1 steel dosing syringe, 100 c. c. for enemas, etc., 1 glass aseptic syringe for irrigating wounds. This list of instruments may be more or less extended according to the ranchers experience.

Lookouts

As has been shown by an able article by Mr. Moore in a previous number of this magazine, a good lookout has a direct bearing on all other factors of fox farming. If results are to be known, a good lookout is essential. Mr. Moore's lookout is situated on a cliff overlooking the fox yard. Here the keeper spends most of his time thru the mating and rearing season, ever watchful.

Hospital and Quarantine Pens

There are more young foxes lost from intestinal parasites, especially round worms than from any other cause. A few ranches unhappily are infested with this parasite. Once the ground becomes infected it is a difficult problem to free the ranch from this worm. The object of this chapter is to show what may be done to prevent this parasite from contaminating new ranches.

There are two outstanding features in regard to round worms. One that the worms can be easily driven out of the animal by medicines, and the other that the eggs live a long time in moist earth. It is evident therefore that the object of every new ranch, is to drive out all worms from every fox, before they are placed into their permanent pens. This fact has been suggested by Dr. Wadsworth in a previous article.

Round worms, *Belascaris Vulpis*, unlike the hook worms can all be driven out of a fox without danger to the animal itself. To accomplish this a number of hospital or quarantine pens should be built. All foxes arriving are placed into these hospital pens for five days or a week. Here they are examined and treated accordingly before they are ever placed into permanent pens. They may also be held here in quarantine and treated after coming from a show, or before going to a purchaser.

The size of the hospital will depend on the size of the ranch and the number of foxes to be received at one time. A purchaser can very easily make arrangements to have his foxes shipped in two or three lots of a dozen each or more a week

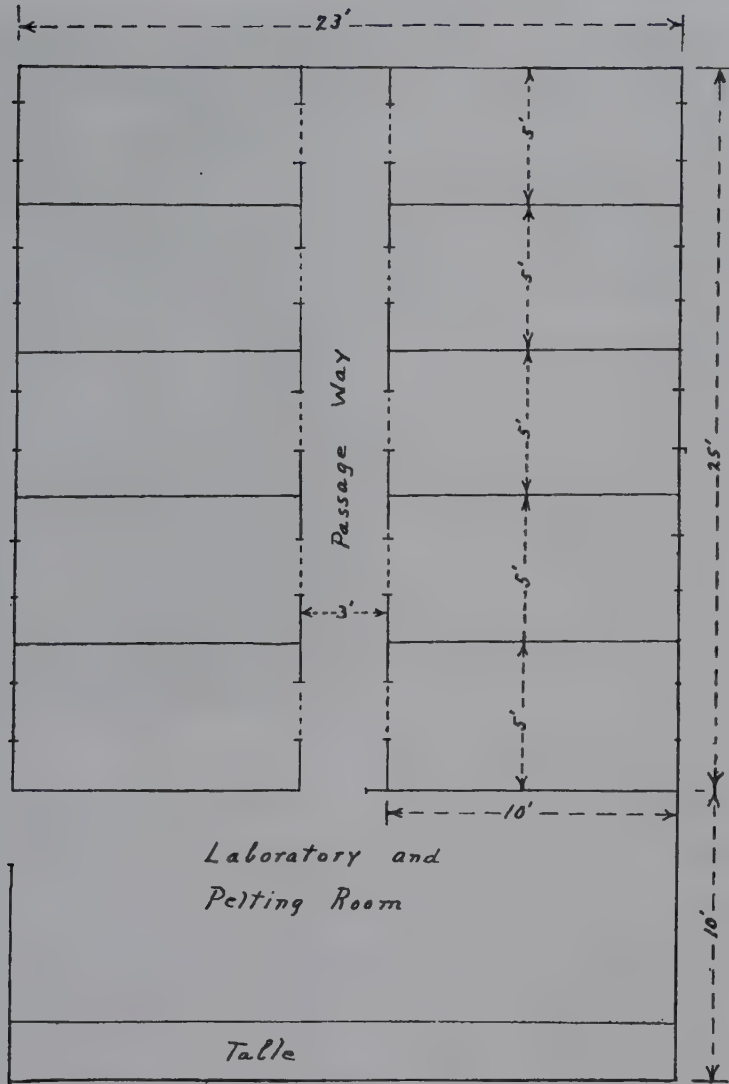


Fig. 6—General Outline of Hospital Pens

board partition set on the ridges. Wire netting covers the top and ends of the pens. The ends come flush with the side of the building. A window is placed above each pen, while the lower end is so constructed that the entire board end, facing the one pen into another. The pens are separated by a smooth or two apart between lots. By this method, twenty pairs of foxes could easily be accommodated with a six to ten pen hospital.

Fig. 6 illustrates a hospital with ten pens. The pens are enclosed in a well ventilated building. The pens are in two rows and face a three foot passage way. The size of each pen is 10 x 5 feet. The entire floor of the hospital should be of smooth concrete, so that any infecting material can be easily removed by flushing. The floors of the pens have a six inch slope to the outside to a drain trough. Between each pen is a concrete ridge to prevent flushed material from running from

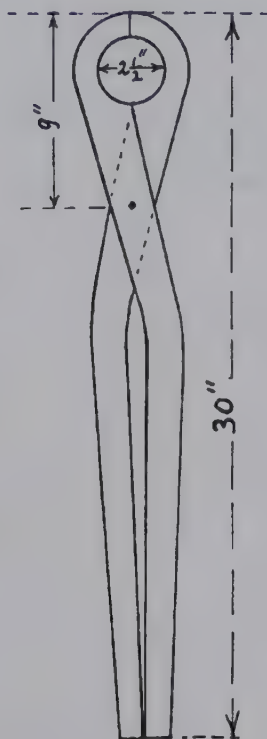


Fig. 5—Wooden Catching Tongs

outside, may be removed to permit plenty of fresh air.

At one end of the building is placed a laboratory and pelting room.

New foxes arriving should be placed in quarantine for at least five days. A pair may be placed in each pen, but one fox to a pen is better. Here each fox should be given a thorough examination, especially for external and internal parasites. A microscopical examination of feces will greatly aid the rancher in determining the kind and extent of the infection.

In any case a thorough treatment for round worms should be given to all foxes. The floors should be cleaned and flushed between each treatment. The treatments should at least be three in number for each fox. After the feces are picked up, a fire torch applied to the spot is effective in destroying any worm eggs present. No dens are placed in the pens. A shelf may be placed a couple of feet above the floor for foxes to lay on. All feed dishes should be removed and scalded after foxes have eaten and watering fountains should be fourteen inches above the floor.

The foxes may also be treated for fleas and lice if any are present. The day following the final treatment they are placed in their permanent pens.

Having your foxes free from round worms and other parasites will pay for the hospital pens many times over by a result of more pups raised, and foxes of greater vitality and prolificness.

If you believe in an American publication for the American fox and fur farmer show your belief by sending in your subscription and your advertising contract.



BETTY H. CHAPMAN

The above is a splendid likeness of Betty H. Chapman, of Pendleton, Oregon. This woman has the distinction of being one of the very few who are actively engaged in the raising of Silver Black Foxes in captivity. She is at present in charge of the Silver Black Fox Farm of Dr. D. C. McNabb of Pendleton, Oregon.

This is the largest fox farm in the State of Oregon. Dr. McNabb decided to make a trip East and he has been gone several weeks, during which period Mrs. Chapman has had entire charge of his ranch and she has proven conclusively that a woman is perfectly capable of running a fox farm.

Mrs. Chapman does all the work in the fox yard, entertains the visitors, tends to all correspondence, and does all caring for the foxes. If Mr. Fox gets too friendly with his neighbors, gets his leg where his neighbor bites it, Mrs. Chapman doctors it. If Mrs. Fox gets something in her eye, Mrs. Chapman removes it. If parties come for information on fox and fox farming, she explains it, understanding the fox business thoroughly. She sells foxes, puts them into crates and tends to the shipping.

One of the reasons why we are publishing this item regarding Mrs. Chapman is that very frequently lady visitors at fox ranches remark that they would like to go into such a business as fox farming but they would have to hire male help to attend to it and that this would be likely to be an expensive problem and one attended with some risk as to getting capable and dependable men on a ranch.

Mrs. Chapman loves the work, believes in the business, and feels that there is a future for it, and she states that women should not hesitate to go into this line of business. There is no doubt but that in the next four or five years many women are going into the fox industry because not only is it a profitable business, but also a delightful study.

BELGIAN HARES AS MEAT PRODUCERS

By F. L. WASHBURN

Division of Entomology and Economic Zoology, University of Minnesota

IN VIEW of the high prices and the need of meat conservation, the advice of the United States Food Administration that Belgian hares and allied breeds be kept as a source of cheap and nutritious meat, putting these animals on a utility basis, has been generally followed. So many inquiries regarding the care of the animals have been received that it has been thought well to revise and reprint this bulletin.

As popularly and broadly used, the term "Belgian hare" includes the true Belgian, the Flemish Giant, the New Zealand Red, and possibly one or two other breeds. The breeds mentioned—as well as their cross-breeds—may be regarded as the utility strains of rabbits on account of their size, rapidity of development, fecundity, and the fine quality of their meat. In fact, the comparative rapidity of reproduction and the consequent large amount of meat produced in a short time, the cheapness of their food, and the small amount of space required are their chief recommendations. One doe may produce more than forty-five pounds of meat in six months and the claim has been made that two hundred pounds a year is possible.

The meat of these animals is not at all like that of the cottontail, or snowshoe, rabbit or that of the prairie hare (jack rabbit), being much more delicate and lighter colored, that of the hind quarters being nearly as white as the breast of chicken. In fact, when served on the table it is hard to distinguish this meat from that of chicken. The writer has never dressed a wild rabbit without finding parasites in some stage, bot flies or tapeworm, for example. On the other hand he has never found, in handling several hundred Belgian hares, any microscopic parasites (bots and worms) whatever, though occasionally white spots noted on the liver indicate the presence of coccidiosis. However, this in no way effects the quality of the meat, which is as appetizing in summer as in winter.

The breeds of rabbits under discussion (these are really large rabbits bred to the hare type and not true hares) will live and thrive in the winter climate of this latitude, although fecundity may be somewhat checked during the cold months, and in extremely cold weather the newly born young may freeze. If fairly warm quarters can be provided, these may be overcome. Hares in the open or in cold sheds or barns should be given tight nest boxes well provided with straw. It is a good plan also to pack straw around the nest box in severe winter weather.

In giving these instructions it is assumed that the would-be breeder is a beginner proposing to raise meat for his family, rather than one intending to establish a business on a commercial scale.

The decision as to the best variety of the three strains to raise is to a certain extent a matter of personal preference. Flemish, gray or steel, hares grow large (from ten to fifteen pounds or more), make good mothers, and generally produce good sized litters. Black Flemish do not ordinarily grow quite so large as the gray. On the other hand, the breeding age of the Flemish is commonly later than that of the other two varieties, they demand more food, and their meat is somewhat coarser. They are also harder to handle, that is, to pick up and carry about. Flemish does have a well-marked dewlap. New Zealands are attractive in color (a reddish buff or orange in best individuals), are quiet in disposition, the bucks evidently

not so quarrelsome as they mature as those of other breeds, and the meat is of fine quality. They are not early breeders. Adults weigh from eight to ten pounds. The does have a dewlap. The Belgian, standard grade, is graceful, handsome, alert, rufous red or mahogany with wavy black ticking on the back and black lacing on the tips of the ears; all four feet are reddish. Its meat is of fine flavor and it is a desirable animal both for the table and for exhibition purposes. Good Belgian does are without dewlap.

Purchasing Stock

Too much importance can not be placed on the buying of stock. The beginner should be contented with from one to three does and a buck, and if possible should see the stock before purchasing it. If that is not feasible he should buy of a reputable party and under conditions which will insure getting healthy and well-bred animals. It is not advisable to purchase hares of companies agreeing to buy back young stock. No rabbit should be purchased which is observed to sneeze or shows any discharge at the nostrils or any moisture on sides of mouth or on fore-paws. Pot-bellied stock or extremely fat adults or adults too old to breed productively, should be avoided. Avoid purchasing does with a furtive look or those which appear very nervous and easily frightened. Such animals may prove to be poor mothers or poor breeders. It is desirable, if possible, to buy does which you know have successfully littered once or twice. Old age is indicated by long, coarse claws and excessive flesh. Occasionally does are very poor breeders, those more than two and a half years old have in most cases outlived their usefulness. A Belgian or New Zealand doe wanted for breeding should be at least seven months old; and a Flemish doe ten months. Such does cost from \$3.50 to \$10 each, or more if they are highly pedigreed stock. Bucks of corresponding specifications bring from \$2 to \$8 each. Young females cost from \$2.50 to \$5 and young males from \$2 to \$4.

An economical way to stock a rabbitry is to buy young animals cheap in the fall. It is extremely important that they be healthy and vigorous. Generally speaking, pairs made up of animals not closely related should be secured. It is especially desirable to have a good buck, even though high in price.

Runs and Hutches

While Belgian hares require little exercise and thrive in a six-foot hutch if it is kept clean, exercise, particularly for the young, is desirable, and ideal conditions are found in runs if they are not crowded. These may be of almost any length, one approximately 4 by 20 feet being sufficient to accommodate eight or ten young rabbits. These runs should be made of one-inch wire mesh and have a top of the same material to keep off cats and other enemies. The bottom should also be of wire mesh covered with from four to six inches of soil. This prevents their digging out. This soil should be changed frequently, otherwise it may become impregnated with coccidiosis germs. A board floor that can be cleaned frequently is better than one of soil. In this run should be placed a rain-proof nest box about 2 by 2½ feet and from 14 to 16 inches high with the board bottom off the ground. It is well to have the top of the nest box removable to facilitate handling the rabbits and cleaning. The top of the run (wire mesh) should be made to

lift up or the run should be from $3\frac{1}{2}$ to 4 feet high and provided with a door to facilitate the entrance of the keeper. Should this door be at the end and reach to the ground or the floor of the shed, it will be possible to rake out the waste litter. If the run is to be used in winter, the nest box should be kept supplied with plenty of straw, and other means taken to insure the comfort of the animals. Do not crowd animals in runs or hutches.

A building 10 by 30 feet will accommodate 12 to 15 hutches on each side. Good ventilation summer and winter without direct draft is highly important.

However, as was said before, an adult rabbit will be perfectly comfortable in a hutch 2 by 2 by 6 feet, even with a litter of youngsters, and as these hutches can be placed in tiers of two or three, requiring little floor space, they will be more used by the town or city dweller than the runs. About one-third of the hutch should be partitioned off as a nest box. The front of the nest box should be provided with a wooden door which can be fastened, and the rest of the hutch furnished with a door made of a stout frame on which is tacked one-inch wire mesh. The wire prevents the escape of young animals and keeps out rats and mice, which are pernicious enemies of young rabbits.

In the wooden partition between the nest box and the rest of the hutch, a hole seven or eight inches in diameter, preferably round, should be made for the passage of the animal. It is important that the bottom of this hole be four inches above the floor of the hutch, as this will to some extent prevent the doe from dragging her young, when nursing, out of the nest box. If this style of hutch is used, a shelf should be attached to the side of the hutch a few inches from the floor in order to allow the doe to get away from the young when they are too insistent on nursing. Or a separate box may be provided.

This description is for a standard hutch. As a matter of fact, a capable boy with a few tools and a dry goods box can make a good hutch with an outlay of a small amount of time and about fifty cents for hinges, netting, hooks, and nails. Rabbits may be kept in pens in old sheds or barns, and boxes approximately 18 inches square and 14 inches high used for nests. The height of the nest box is important. If too low the doe is likely to injure her young. A board four inches high fitting across the door of the nest box and one across the door of the hutch will prevent nervous youngsters from falling over the edge when the door is opened.

A dish with high sides should be used for food, as the food is kept cleaner than when in a low one. One with higher sides should be used for drinking water, in order to prevent the rabbits from getting wet. It should be heavy enough not to be easily overturned. In freezing temperature flat tin dishes must be used for water and the ice knocked out of them at each filling. Specially made dishes for water and feed can be purchased. Litter, either sawdust, excelsior, or straw, should be put on the floor of the hutch and in the nest box. Every effort must be made to keep the hutch dry.

Cleaning Hutches

While not requiring much time, cleaning is an important part of rabbit keeping. Most does, particularly those that have been raised in hutches, leave droppings and urine in one corner of the hutch. Twice a week these should be taken out, the corner sprayed with a disinfectant or a deodorizer, and clean, dry litter put in. Once every week or ten days it is desirable to renew all litter except in the nest boxes. A tin plate not more than an inch high and approximately eight inches square, placed in the corner where droppings are left and covered with litter, will facilitate removal of these and keep moisture from impregnating the wood and penetrating the hutch below. Nursing does and occasionally others frequently move this pan about, thereby lessening its usefulness; but ordinarily it is quite

effective. The nest box should be examined occasionally, for sometimes rabbits which are not used to hutch life will defile it. This is true also of many bucks and sick or feeble does.

Feeding and Watering Adults—Cost of Feed

It is evident that during the spring and summer months the rabbit raiser need be at no expense for food, as young more than two months old and adults will thrive on waste from a garden: beet and carrot tops, old lettuce, chard, melon rinds, cornstalks, weeds, lawn cuttings, chicory, etc. Green food must be fresh and clean. If allowed to stand in piles it becomes mildewed or moldy and is not fit for food. Rutabagas, mangels, and carrots are relished, but are not necessary. A little dry hay—clover, alfalfa, wild hay, or timothy—once a day is desirable. Moldy or dusty hay should never be given to rabbits. Cornstalks are relished, even though dried or frozen. Do not feed silage. In the early spring, late fall, and winter, oats or other grain, hay, and roots must be fed, and an occasional warm mash in cold weather is good. Dry bread and waste from vegetables is excellent and will help to keep down expenses. The morning feed for one adult in winter is 3 ounces of oats (2 fistfuls, not handfuls); night feed 2 ounces of hay (preferably clover or alfalfa, but they will eat timothy or wild hay readily), 3 ounces of carrot, rutabaga, or mangel. This amount and variety of food costs less than 1 cent a day. The Flemish are hearty eaters and will require a little more than this amount. An occasional change of food is appreciated, a bit of cabbage (not too much) or chopped oats or barley, a little bran mash, or bran and alfalfa meal made into a mash with scalding water, bread, or bread and milk, and apple peelings. If the rabbit raiser can not take the time to feed twice a day, one feed may be given and is preferred by some. This should be the evening feed and the full day's ration should be given at that time. Two feeds are preferable. Clean water in clean dishes should always be before them in summer, though, some habbit raisers never leave water in hutches, watering once or twice a day and removing the dishes after the animals have drunk. This method is absolutely necessary in freezing weather. One describes his method as follows: "Each one of my rabbits gets every morning (in the winter time) a small piece of carrot (about 2 ounces) and that is all. I do not water in the morning and never leave water dishes in hutches. In the evening, I feed hay and grain. At night I water by placing full dishes in, say five hutches first, before feeding. Then, beginning with the first hutch watered, I put feed in the five hutches. I then take out the water dishes and place them in the next five and so on; but I do not leave the water dishes in the hutches over night or during the day in winter." With only a few rabbits, one can study the tastes of the individuals; for it is a fact that individuals vary in their likes and dislikes, one rabbit sometimes not touching food relished by another. Frequently, however, an animal may be taught to like a certain food by mixing it with its other food. Rabbits are fond of salt, and it is good for them. A piece of rock salt in the hutch, therefore, is desirable. Here again opinions differ, some breeders preferring to mix a little salt with the feed once a week.

A gray Flemish doe nursing a litter of six will cost for feed during the first three weeks, if grain and hay are fed exclusively, from twenty to thirty cents, not more than five cents for each animal. From the time the young are three weeks old until they are nine weeks, the cost will average from twenty to thirty cents each approximately. The combined weight of the young when nine weeks old will be twelve pounds or more and the cost per pound to the breeder will be from twelve to eighteen cents.

Breeding and Care of Bred Doe

The period of gestation is thirty or thirty-one days and a doe may have as many as eight litters a year or possibly more.

but both offspring and doe will suffer under such conditions, and the young are likely to be poorly developed and perhaps sickly. Four or five litters a year should be the limit, and no doe should be bred until seven or eight months old; the Flemish not until ten months old. Belgians will breed at four months, but this is not desirable. A doe which refuses to breed may be too fat, in which case she should get less food and more exercise; or she may be diseased or too old for breeding, or have been bred too often. The writer has fed dried peas soaked in water several hours to a doe which refused to breed with good results.

(To be continued in December number)

PROTECTING AMERICAN FUR

Legislation relating to fur-bearing animals, the general trend of which was to safeguard these animals and insure prime condition of peltries, has been enacted by half of the State Legislatures this year. The need for such legislation is apparent in the light of estimates by raw fur buyers that the decrease in the supply of peltries during the last ten years has been from twenty-five to fifty per cent.

Summarizing the new legislation in part, the Department of Agriculture states:

"The season on beavers was closed for a term of years in Indiana, Michigan, Nevada and South Dakota, and on otter in Indiana and Nevada. Muskrats were protected until 1924 in North Dakota. Open seasons for taking fur-bearing animals were shortened in Idaho, Indiana, Kansas, Maine, Massachusetts, Pennsylvania, Rhode Island and Vermont; houses, dens or burrows of fur animals were protected in Kansas, Maine and Michigan. Open seasons were slightly lengthened in Michigan, Ohio, South Carolina and locally in New Hampshire."



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Read "FUR FARMING WITH SHEEP" pages 22-24, October number this publication, also twelve pages illustrated article in National Geographic Magazine July 1919, by Professor Robert K. Nabours, of the Kansas State Agricultural College. Address, **L. M. CRAWFORD, Topeka, Kansas.**

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Vol. I

DECEMBER, 1921

No. 6

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PUBLISHED MONTHLY, 406 ARCADE BUILDING, UTICA, N. Y.—PHONE 1778-W
 An American Publication Devoted Exclusively to the Silver Black Fox Industry and Fur Farming

C. L. ROBINS, *Manager*

PUBLISHED BY "AMERICAN FOX AND FUR FARMER"

CHRISTMAS GREETINGS

With sincere wishes for continued and added prosperity for our thousands of readers, we extend the Compliments of the Season. May your share of the blessings for the year 1922 be an abundance.

THE MICHIGAN FOX SHOW

The Fox Show held at Muskegon was a huge success from every point of view. The stay of everyone who attended was made most delightful by the various committees in charge, to whom great credit is due. Especial credit is due Mr. J. E. Smith, Secretary of the National Association, for his untiring efforts. The Michigan bunch are live wires—and then some.

IN FAVOR OF THE TARIFF

On another page of this issue will be found some letters received from ranchers who favor a tariff on live foxes and pelts. We invite and will gladly publish the views of any others who care to send them in.

AN ARTICLE WORTH WHILE

The article by Mr. Jeffreys in this issue merits the careful reading of every fox rancher in the country. It is full of meat and information which is worth many dollars to every man engaged in the industry. Read it—preserve it—and pass the information on to your friends in the industry. We promise you more just like this during the next few months. This publication aims to keep you posted on matters of vital importance to you.

SIX MONTHS OLD

This issue of the "AMERICAN FOX AND FUR FARMER" completes one-half year of existence. We are proud of the reception accorded this publication during the past six months. It has gone far beyond our fondest hopes. Its success is already assured. Six months has proven conclusively that the fox industry and fur farming has reached a point in the United States where it can and will support an American publication for the American breeder. There is no longer any question about it. Hundreds of letters received at this office testify to the faith of the rancher in this publication. Our subscription list is evidence of the willingness of the rancher to back up that faith with dollars. We ask continued co-operation.

RULING ON ALASKA FOXES

The Board of Governors of the American Fox Breeders Association, acting under authority conferred upon it by Article XIV, Section VIII of the By-Laws, which reads: "The Board of Governors may, at any meeting, formulate such other rulings (of Registration) as may be deemed necessary," has this day, October 26, 1921, ordered a separate class of Registration for so called Alaska Silver Black Foxes. The Registration of any Alaskan fox or any fox whose pedigree shows Alaskan blood, that is now on the books of the Association, is hereby cancelled and new certificates of Registration in the Alaskan fox class, must be issued for these foxes. These new certificates shall be mailed to the owners of these foxes, with a copy of this ruling.

In making this ruling the Board of Governors wishes it to be distinctly understood that the question of merit of either the Alaskan foxes or the Eastern (P. E. I.) foxes is not considered.

The ruling is made because it has been proven to the satisfaction of the Board of Governors that the Alaskan foxes and the Eastern (P. E. I.) foxes are different species and that the mating of these two different species, is likely to result in offspring that is of a "cross" or "patch" variety. This is sufficient evidence that the Alaskan and P. E. I. foxes should never be mated if pure bred stock of either species is desired.

CORRECTED LIST OF OFFICERS

The following are the Officers elected at the annual meeting of the American Fox Breeders Association, held last month. Some mistake was made in the list published in our last issue and we are glad to make the necessary corrections.

Officers

Samuel F. Wadsworth, President, 26 Cummington St., Boston, Mass.

Dr. Ned Dearborn, First Vice President, Sacketts Harbor, New York.

C. A. Rogers, Second Vice President, 47 Falmouth St., Portland, Maine.

E. G. Pond, Treasurer, Needham, Mass.

George Brackett, Secretary, 229 Congress St., Boston, Massachusetts.

ADVERTISE IN THIS PUBLICATION

We are daily receiving subscriptions from men and women who are contemplating going into the fox business. Therefore it behooves the man who has foxes to sell to get into our advertising columns. We can show you results. Try a three months contract with us. Key your advertisement and watch the results.

FOOD NUTRITION IN FOXES

A Biological, Chemical and Micro Analysis of Food Values

By GEORGE A. JEFFREYS

Sacketts Harbor, N. Y.

(Copyright applied for)

PART I

THE science of food nutrition and feeding of foxes is an exhaustable study. Too much study and research work cannot be devoted to this subject. Although many articles of great value have been written on feeding of foxes we have not yet attained a perfect knowledge of this important problem.

To secure the perfect feeding of foxes is the desired aim of all ranches. Perfect feeding means more vigorous and more prolific foxes. Faulty diets are contributing causes to rickets, intestinal troubles, abortion and poor quality and quantity of fur. Under a varied diet we try to cover up the various food deficiencies.

Although we may make a success of raising foxes by a hit and miss plan of feeding, the rancher who knows definitely and exactly what kind of food his foxes need at every stage, the kind of food that will take the place of natural foods, how the food is digested and metabolized, will be the man who will realize the greatest measure of success.

Many experiments and studies have been made on dogs, rabbits, rats and mice in food nutrition by many scientists, and certain well defined factors in food nutrition have been solved which are applicable to the feeding of foxes.

In this connection some of the most important principles of the feeding of foxes together with a few feeding experiments made by the author, are here presented to the ranches in the hope that it may achieve some good.

Before discussing the actual feeding of foxes, and to make clear the result of the experiments, a brief review will be set forth of the essential factors of food nutrition pertaining to all classes of animals.

Essential Factors in Food Nutrition and Their Function

In order to maintain life and promote growth in animals, it has been experimentally proven by a host of scientists that there are a certain number of essential factors necessary in the food of animals or humans. Any one of these factors omitted means death or a further cessation of growth in the animal.

The essential factors are briefly as follows:

1. Carbohydrates, produce heat and energy. The chief source of carbohydrates are the starch in cereals and grains and sugars in fruits.

2. Fat, also used to produce heat and energy, but is a more concentrated source of fuel supply.

3. Protein, this form of food is mainly used to build up new muscle and to replace wasted parts. The chief source of protein is contained in meat, eggs, milk, and to some extent in grains especially in their by-products as bran and middlings.

4. Inorganic Minerals, these are used for the formation of the bones and are also present in the various fluids of the body to maintain a chemical equilibrium.

5. Vitamines, three unidentified food substances that are necessary for the growth and maintenance of life. These substances are known to exist in certain foods.

6. Bulk or Roughage, this is to give body to foods of highly concentrated nature.

The Digestion of Cereals and Grains in a Fox

The carbohydrates after being acted upon by the digestive juices of the stomach and intestines are converted into more simple compounds, mostly glucose. Glucose is then stored in the liver and blood. By means of the blood the glucose is distributed among the tissues and muscles of the body and by uniting with oxygen is oxidized or burned to form heat and energy. When the supply of carbohydrates is in excess of the needs of the body, it is stored in the body in the form of fat.

The pertinent question to the fox rancher is, to what extent are such foods as the grains, wheat flour, oatmeal, rice, cornmeal, middlings and bran digested in a fox, what are the effects and what is the most suitable combination of these foods.

In nature foxes subsist to a large extent on small rodents and birds. As these are mostly grain eaters, the foxes obtain some of their supply of carbohydrates from the glucose in the blood of these rodents and birds. Wild foxes are also known to eat fruits which are rich in carbohydrates, minerals and vitamins.

Foxes belong to the same family as dogs (Canidae). Also as foxes are considered omnivorous as man, the result of the experiments with dogs and man can be well applied to foxes.

It was estimated that 98 per cent. of the carbohydrates were digested and utilized by dogs fed on a diet composed of starch sugar, etc.* Sherman states that in many experiments with carnivorous animals, the carbohydrates were not only digested and burned for fuel and energy, but that most of the surplus was transformed into fat.

A simple test can be made by the reader as to the digestibility of starch in a fox. The feces of a meal rich in carbohydrates is dissolved in water, and the coarse particles and dirt strained out. If any undigested starches are present, a purple blue color will result by applying a drop of iodine solution. Of a number of such tests, in no case was a positive action obtained.

The cereals and grains as a whole have been shown by McCollum to be somewhat deficient in two essential food factors, vitamins A and inorganic salts. The by-products of certain grains as bran and middlings however, are an exception to the last factor. In the milling process half of the inorganic salts are removed from the flour and remain in these by-products. This can readily be seen from the food values given in table 1.

The grains, however, are fed mainly as a source of carbohydrates, while their deficient qualities are supplied by other foods. The grains themselves vary in composition, some being more balanced or containing more of certain kind of food essentials than do others. It follows therefore, that a combination of two or more cereals in a ration are of more value, than a ration composed of one cereal. The cereals of such combination supplement each other in their deficient factors.

As foxes under domestication do not get a varied diet like man, it is necessary to select cereals which will give the best results in combination with meat and milk. The food value of the various cereals will now be taken up in order.

*Sherman, Chemistry of Food Nutrition, Page 143.

TABLE 1

Composition of Edible Organic Nutrients in Various Foods				Edible Portion Important Minerals in Percentage of Three			Vitamines	
Food	Protein per cent	Carbo-hydrate per cent	Fat per cent	Calcium (Ca)	Phos. (P)	Iron (Fe)	Fat Sol. A	Water Sol. B
White Flour	7.9	76.4	1.4	.020	.092	.0010	+	+
Whole Wheat Flour ..	13.8	71.9	1.9	.045	.423	.0050	+	+
Wheat Middlings	14.9	56.8	4.5	.124	.940	.0062	+	+
Wheat Bran	15.4	53.9	4.0	.120	1.215	.0078	+	+
Cornmeal	9.2	75.4	1.9	.018	.190	.0009	+	+
Oatmeal	16.1	67.5	7.2	.069	.392	.0038	+	+
Cotton Seed Meal	19.6	28.3	20.1	.265	1.193		+	+
Rice, Polished	8.0	79.0	.3	.009	.096	.0009	—	—
Apples .....	.4	14.2	.5	.007	.012	.0003	+	+
Eggs	13.4		10.5	.067	.180	.0030	+	+
Milk, Whole	3.3	5.0	4.0	.120	.093	.0003	+	+
Milk, Skimmed	3.4	5.1	.3	.122	.096	.0003	+	+
Buttermilk	3.0	4.8	.5	.105	.097	.0003	+	+
Fish	19.4		1.2	.109	1.148	.0055	+	+
Mutton	15.6		24.1	.064	1.082	.011	+	+
Beef	18.4		15.0	.058	1.076	.015	+	+
Horsemeat	21.0		8.0	.050	1.078	.018	+	+
Blood, Dried	60.8		5.0	.016	.062	.104	+	+
Green Bone, Cut	20.6		20.5	14.000	7.000	.005	+	+

Note—Vitamines when present in sufficient quantities are indicated by two plus signs.

When present, but not in sufficient quantities are indicated by one plus sign.

Absence of vitamins are indicated by a minus sign.

Compiled from tables of H. C. Sherman, Columbia University and W. O. Atwater, Department Agriculture U. S. A.

Wheat and Its By-Products

Experiments with foxes have shown that of all grains, whole wheat together with its by-products have given excellent results. On the other hand white flour alone is very much lacking in most of the body building elements, vitamins, minerals and bulk, having lost most of this food value in the milling process (see table 1). In the human diet, this deficiency of white flour is offset by a varied diet of vegetables and fruits which are rich in vitamins, minerals and bulk. It follows that white flour, or any other flour that represents only the starch of the grain, would be an impracticable food for foxes unless largely supplemented by other foods containing the qualities that are missing in flour.

Whole wheat flour on the other hand, when fed in combination with other cereals or especially with its own by-products, has given the best results. Although none of the inorganic material is removed from whole wheat flour, it still lacks in these substances. This can be remedied by adding to whole wheat flour a certain amount of its by-products, bran and middlings which are richer in minerals and at the same time furnish the necessary bulk.

A certain amount of roughage or bulk is a necessary factor in the food of foxes. This roughage is supplied to wild foxes in the form of skin, bones, hair and feathers of rodents and birds. Feeding pure concentrates as pure meat, flour, rice and milk will not give the best results in mature foxes. The physical effect of proper roughage in food is beneficial to the fox. It keeps the bowels in good working order and prevents such troubles as constipation and diarrhoea. Of all foods, middlings and bran not only supply this necessary quality but are also fairly rich in other food essentials.

Wheat middlings is a product obtained from the wheat grain in the manufacture of flour. It contains more protein

and inorganic minerals than flour, and is therefore a better body building food. Its calcium content which is so necessary for the formation of bones, is higher than in white flour. In combination with whole wheat flour or other cereals, it supplies the protein and mineral deficiency and by means of its cellular structure it serves as roughage.

Bran, the outer coat of wheat, is a much misunderstood foodstuff in relation to feeding foxes. This coat covering of the wheat kernel, in addition to its mineral content, is composed of a certain cellular structure which contains a certain amount of protein and carbohydrates. Many of the keepers conceive bran as a laxative food, and without any further investigation, reject it from their food ration. This idea is obtained from the fact that bran is sold on the market for the human diet to relieve constipation. Experiments have proved, however, that while it prevents constipation, it also has the property of producing a firm feces when fed in combination with other foods or constituting one-third of the ration. Such a feces is not only natural to a fox but the manure can also be easily removed from the pens, a decided advantage in sanitation.

When bran is eaten by a fox, most of the food elements as carbohydrates, protein and mineral salts are digested out, while only the cellular structure remains. This cellular structure of bran furnishes bulk and firmness to the feces and functioning as a sponge absorbs gas and watery discharges. To show this process of digestion and absorption of bran, a series of microscopic photographs were taken by the author of bran before and after digestion. Fig. 1 shows bran before digestion. It will be noticed that the cellular structure is all filled with food material. Fig. 2 shows bran hulls that were recovered from the feces of a fox. Note how the food material has been nearly all digested out, leaving the cellular structure to act as a beneficial roughage and a sponge.

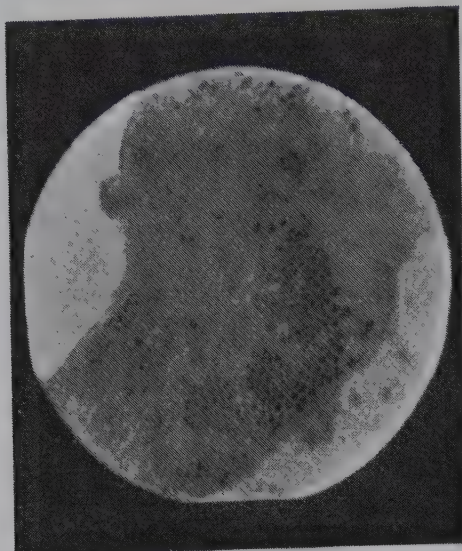


Figure No. 1

Some ranchers have been using cut dried grass for roughage. Dried grass, however, has very little nutrition, but a very good substitute can be had in fresh sprouted oats. The oats are sown thickly in rich earth and allowed to sprout to about four inches in height. They are then mowed down and cut into inch lengths and cooked with either mush or biscuit. Sprouted oats can also be grown in winter in large shallow boxes filled with earth and manure and placed in the cellar near a window light.

Other Cereals

Cornmeal, although low in calcium content is a good food to use in combination with other cereals especially whole wheat. It can be used in place of whole wheat flour when fed with middlings or bran. Cornmeal is sometimes adulterated with ground corn cobs. When large quantities are purchased, a microscopic test should be made in this respect. Owing to its leating and fattening properties it should be used sparingly in the summer, increasing its use as winter approaches. Chemical tests have shown that practically all the starch of cornmeal is digested in a fox. Like other grains, it is deficient in protein, minerals and vitamins and therefore should be fed in combination with bran, middlings or other foods that will correct its deficient qualities as much as possible.

Rice although rich in fuel and energy value, like white flour only more so, is very deficient in minerals, vitamins and roughage. A diet composed mostly of polished rice will bring about the disease called Beri Beri. This disease occurs frequently in the orient where polished rice is one of the main foods. McCollum has experimentally produced this disease in rats by feeding them largely on polished rice. Feeding rice in combination with milk or other mill products corrects this deficiency to some extent, but as other cereals can be had that are more efficient, polished rice should be used sparingly.

Cotton seed meal although never tried out on foxes, would probably make an excellent fox food. It contains an abundant supply of protein, energy and mineral salts. When fed to cattle in considerable quantities, it is said to have a slight toxic effect. Osborn and Mendel have shown, however, that this toxic effect is destroyed by cooking. Richardson and Green feeding a com-

mercial cottonseed flour, found that no evidence of toxicity appeared, although this flour constituted from 45 to 50 per cent. of the ration of albino rats through four successive generations.*

Oatmeal like cornmeal is low in calcium. It is an excellent food that can be used in place of whole wheat or cornmeal to afford variety. As in other grains it is lacking in minerals and vitamins and therefore must be supplemented with other foods.

Commercial biscuit is not to be compared with the home made product. The quantity and quality of its food essentials is uncertain. It is clearly obvious that for a firm to derive any profit from a commercial biscuit, it must use the cheapest material obtainable. In home made biscuit only those constituents are used that are known to be best adapted to a fox and that give the best physical effect. Some commercial biscuit produces a very thin feces which is undesirable.

Fats in Food Nutrition

Almost as widely distributed in nature as carbohydrates and constituting a much more concentrated form of fuel supply, are the fats. It has been estimated that fats are two and one-fourth times as efficient as are the carbohydrates. The fat, after being absorbed in the intestines, may be burned either as fuel or stored in the body for future use, or a part may enter into combination with proteins to form some more complex cells of the body.

At the approach of winter, wild animals and birds begin to store up in their body a certain amount of fat. This fat not only serves as a blanket for protection against the cold, but is used to furnish the extra amount of heat needed in severe cold weather.

Carnivorous animals poor in fat are most susceptible to pneumonia. The old idea of starving foxes at the approach of winter has been entirely discarded by modern ranches. It can be seen that when wild foxes feed on fat rodents and birds late in fall, they obtain a certain amount of fat in this manner. It is an undeniable fact that the best results of mating are obtained when the animals are in the best physical condition. For this reason it is a wise policy to commence to feed foxes in September, October and November foods that are rich in carbohydrates and fat more so than at any other time of the year.

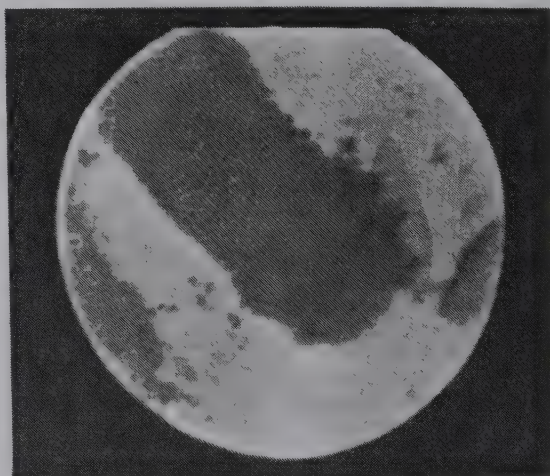


Figure No. 2

*Richardson and Greene, Nutrition Investigations upon Cotton Seed Meal, Journal Biological Chemistry, Vol. 31, Page 379-1917.

Table 1 shows mutton contains a fair amount of fat, with beef next, while cornmeal and whole wheat flour together with milk is an excellent source of carbohydrates. These foods should predominate through the fall months.

Protein

The chief constituents of active tissue are proteins. Proteins when eaten as food are termed muscle builders, because they either replace the wasted cells of muscle or furnish the material for more cells. Carbohydrates are composed of three elements, carbon, hydrogen and oxygen, while proteins differ by having these same elements with an addition of nitrogen, sulphur and phosphorous. The proteins are widely distributed in the vegetable and animal kingdom. There are many different forms of proteins every food having its own peculiar variety.

Because the fox is a carnivorous animal and eats flesh, is no indication that it can be fed on a diet composed almost entirely of lean meat. Such a diet is not only inadequate but is detrimental to the animal. The wild fox obtains its chief source of protein supply in the flesh, blood and glandular organs of the rodents and birds it catches. Along with this protein, it gets its necessary supply of energy and fuel from the fat, iron from the blood, organic phosphorous from the brains, vitamins from the glandular organs and roughage from the bones and skin. McCollum states that meat is deficient in inorganic salts and one vitamin and therefore must be supplemented by other foods containing these absent factors.

The proteins themselves vary in quality and must be supplemented by proteins of other foods before they are efficient and can meet the requirements of the body. Thus McCollum showed that the proteins of rice are poor in quality, for no growth could be achieved in rats fed on rice even if all other essential food elements were added, unless supplemented by proteins from outside sources.

The proteins of meat, however, when considered as proteins alone are superior in quality to grains and cereals and come next to the proteins of milk and eggs.

The proteins of milk and eggs are better adapted for the growth and maintenance of life than any other protein. When a varied diet is fed the proteins of different foods supplement each other, so there is little danger of protein deficiency. The proteins of milk, however, remove all such danger.

Inorganic Minerals

The Nutritive value of food is not alone measured by its carbohydrates and proteins, but depends in part upon several important inorganic elements. These elements in the food are sometimes termed as minerals or mineral salts, because when food is burned or metabolized in the body they are excreted in the urine and feces chiefly in the form of mineral ash. These elements are as follows:

Calcium, Phosphorous, Iron, Sulphur, Potassium, Sodium, Chlorine, Magnesium.

The last five are present in sufficient quantities in most foods to supply all the needs of the body. In the first three calcium, phosphorous and iron, many of the foods are deficient and therefore only these elements will be considered.

Phosphorous is essential to every living cell and protoplasm, also being prominent in the skeleton, in milk, in sexual elements, glandular tissue and nervous system. It is estimated that twenty-five per cent. of the bones is calcium phosphate.

Calcium is also present in nearly all fluids of the body, and its chief function here, is largely to preserve an equilibrium; that is, it offsets any abnormal effect or irritation which other minerals may produce.

Iron although present in small amounts, its function is of the highest importance. Iron is part of the hemoglobin of the blood and by its presence, the blood is able to carry oxygen to all parts of the body.

Iron is not stored up in the body of the adult animal like carbohydrates and fat, hence if the intake of iron fails, diminution of hemoglobin soon results which if continued brings about anemia.

During pregnancy and in nursing mothers the mineral requirement is greatly increased to almost double. Calcium and phosphorous are required in double quantities for the formation of the new skeleton, while extra iron is needed to make up a reserve supply in the young animal. It is at this time that the rancher who had a fair idea of what minerals his animals need, and in what foods they may be supplied, will be able to prevent malformation and rickets in the young.

Inorganic Foodstuffs

By studying table 1 it will be seen that many of the foods have a low content of certain minerals. It is therefore an advantage to the rancher when making up his ration for foxes to select such combination that will bring the mineral content, above the limit requirement of the animal.

Milk and eggs are well balanced in regard to mineral salts. From their nature it is necessary that these two foods should contain these minerals. The organic phosphorous although appearing low in milk and eggs are of such character as to be highly adaptable to nerve and cell building.

For growing animals milk should be able to supply all the minerals required except iron. Bunge has shown, however, that all young animals are born with a reserve of iron to offset this one deficiency of milk. Sherman states that one quart of milk contains more calcium than one quart of lime water. The solution of calcium in water is very slight, being about 1 to 600, while calcium of milk is present in such forms as to be highly effective.

Meat is low in calcium. Rickets have been experimentally produced by feeding puppies on lean and fat meat only* It *Sherman, Chemistry of Food Nutrition, page 262.

will be seen that when pregnant mothers require a double amount of calcium, to prevent rickets, meat must be greatly supplemented by other foods as milk, green cut bone, and grain by-products rich in calciums.

Green cut bone is not only the principal source of calcium and phosphorous, but it is also rich in protein and fat (see table 1). This calcium and phosphorous of bones, are all utilized by the growing animals.

The value of green cut bone has been little realized by many of the ranchers. Although foxes obtain some of the minerals when fed whole bones, most of the nutrient and minerals are lost. Cutting up the bones by a machine makes this nutrient and minerals accessible to a fox. Foxes are more apt to choke trying to gnaw pieces from large bones, than they would if fed green cut bone. Cutting bone up fine is like cooking grains to make them susceptible to digestive fluids. Green cut bone can then be easily combined with other foods, by cooking it with mush or biscuit.

Most of the whole grains especially white flour and rice are entirely inadequate in mineral salts. McCollum was unable to raise rats on a diet of grains without the addition of mineral salts. If most of the grains in a fox ration are combined with grain by-products and fed with milk, there is little danger of mineral deficiency.

Sodium Chloride or common ordinary table salt is present in sufficient quantities in meat and various other foods to supply the needs of the fox. It is not harmful, however, and in some cases might be beneficial to add enough to flavor the food.

Vitamines

It was not until recently that vitamins or food hormones were discovered to be a necessary factor in the maintenance of life. Although animals were fed food entirely adequate in respect to all other essential food elements, yet they failed to



MRS. JEFFREYS AND A PET FOX

grow and produce young. The experiments were varied, and it was found that for animals to grow there must be present in the food two other growth substances, besides carbohydrates, fat, protein and minerals. These substances have been termed vitamins by Funk, food hormones by Sherman, and fat soluble A and water soluble B by McCollum. Substance A is generally associated with certain fats as in butter fat, B has the property of being soluble in water.

Funk, McCollum and others have shown that growth of young animals stopped when substance A was absent from the animals ration. Upon a slight addition of fat soluble A growth was again resumed. Similarly, with water soluble B it was found that its absence not only inhibited growth, but caused disturbances and disease as Scurvey and Beri Beri.

Fat soluble A, is mainly present in butter fat, milk, eggs, glandular organs and leaves of plants in enough sufficient quantities to maintain normal growth, while in many other foods as in grains, meat, it is present in small quantities not enough to maintain growth (see table 1).

Water soluble B is present in nearly all foods, milk, fresh vegetables and meat being rich in this respect. Polished rice has very little or practically none.

Wild foxes obtain their fat soluble A from the glandular organs of the rodents they kill. The ideal source of this vitamin for the domestic fox is whole milk.

Conclusion

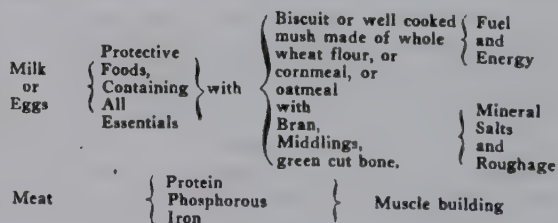
We have seen that a ration for a fox is not adequate unless it contains all the five essential food factors necessary to maintain life, carbohydrates, fat, protein, mineral salts and vitamins, also the additional factor of roughage to go along with these foods. Some of the foods are well balanced containing nearly all the necessary food elements in proper proportions as milk and eggs, while other foods are one sided furnishing an excess of one or more essential elements, as protein in lean meat and carbohydrates in rice.

In reviewing the essential principles of food nutrition, it is a comparatively easy matter to formulate several different combinations of feeding rations for foxes that would supply all the necessary factors for the growth and maintenance of life.

We have seen that milk and eggs are rich in all essential food factors. As a means of protection against a deficient diet

whole milk should be used as much as possible. An excellent source of protein for a fox is contained in several varieties of meat. Green cut bone is also rich in protein as well as fat, but it should mainly be used for its mineral supply. The source of carbohydrates can be had in cereals and grains as whole wheat flour, cornmeal and oatmeal. Bran, middlings and sprouted oats not only bring the mineral of rations to a higher point, but supply the roughage needed.

The following diagram serves to show the combination of ideal rations:



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Note—The next installment of Food Nutrition in Foxes, will contain a discussion on the preparation of rations and methods of cooking foods, contributing causes of mucus in the feces of foxes and other important things in relation to food and feeding of foxes.

When writing advertisers, please mention that you saw their advertisement in the "American Fox and Fur Farmer."

IN FAVOR OF A TARIFF

Letters Received in Response to Editorial in Last Issue of
"American Fox and Fur Farmer"

Orange, N. J., December 1, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

Regarding your notice in current issue of your magazine concerning duty, we are in favor of the proposed tariff and are so on record with the proper Department at Washington.

Very truly yours,

SILVERPLUME FOXES, INC.,

D. S. Crowe, Secretary.

Mosinee, Wis., December 12, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

I am in favor of a tariff on foxes and pelts. It is highly necessary. I wish you success. The magazine is great.

Yours very truly,

FRANK BESTE.

Bolton Landing, N. Y., December 11, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

Answering your inquiry in the last number of the "American Fox and Fur Farmer" in regard to a tariff on imported live foxes and fox pelts, I most assuredly favor a tariff on both. I think that the passing of such a bill would be of immense value to the fox business in the United States.

I am taking a great interest in your new magazine and think that you have gotten out a great publication. I wish you the best of success for the future.

Very truly yours,

ABNER P. SMITH,

Lake George Silver Fox Farm.

Zion, Ill., December 4, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

I am in favor of the tariff.

Yours truly,

A. HACKBARTH.

Harrisville, N. Y., December 4, 1921.

American Fox and Fur Farmer

Utica, New York

Dear Sirs:—

I feel that I must join my voice to that of the general chorus which is praising your admirable magazine. It cost me three dollars per year but I would not be without it, neither would I advise anyone who is contemplating taking up the study or occupation of fox farming be without it for ten. I have shown the two numbers I have received to a friend only to-day and he remarked on the fine appearance, both on the outside and inside.

I wish to add that I certainly am very much in favor of a duty on stock and pelts from Canada. Just think what it would mean to the industry on this side of the boundary if it was taken off. It would spell ruin to many small ranchers and large ones too, because that is all that keeps the market from being flooded with foxes.

Very truly yours,

LYMAN R. HUMES.

QUESTIONS AND ANSWERS

This Department is open to our readers for the asking and answering of any questions connected directly or indirectly with fox and fur farming. It is not the intention of the Editor to answer these questions from the office of the publication, but rather to allow our readers to answer them from their wide and practical experience in the industry. Answers sent in care of the publication will be promptly forwarded to the one making inquiry.

Ques.—Can silver black foxes be successfully raised in captivity?

Ans.—Yes, as easily as dogs when properly fed and cared for.

Ques.—How many do they produce to a litter?

Ans.—Naturally from four to nine. A young female sometimes will not have more than two or three. Size of litters is governed to a great extent by care and feeding.

Ques.—At what age do they commence to breed?

Ans.—The first year.

Ques.—Are they wild?

Ans.—Not if properly raised. They are not wilder than a dog. Will eat out of your hand.

Ques.—What do they eat, and at what cost?

Ans.—They will eat anything a dog will eat, but should not be fed anything that is not clean enough for a person to eat.

Ques.—How much labor is involved in the care of foxes?

Ans.—One person can care for fifty pairs.

Ques.—Can one male be mated with more than one female?

Ans.—No, this is not desirable. They mate for life in the wilds and should be so mated in captivity.

Ques.—What is the best location for a yard?

Ans.—A spot with good drainage and some shade trees is best.

Ques.—What size yards are best?

Ans.—We prefer yards 25 x 50 feet for each breeding pair.

Ques.—How high must fences be built? Ans.—This depends on the snowfall in your locality.

Ques.—How deep must it be wired down?

Ans.—This depends upon the kind of soil. In loose, sandy soil it must go deeper.

Ques.—Must yards be located in an isolated district?

Ans.—No. Our yard is located not more than fifteen rods from our buildings.

Ques.—Does it interfere with results by allowing people to visit the breeding yards?

Ans.—No. We believe it beneficial. It helps to domesticate them. Our animals will eat out of a stranger's hand.

Ques.—Can foxes be raised in every state and a good quality of fur produced?

Ans.—Foxes can be raised and a good quality of fur produced in any state in which the summers are not too long and warm. Cool nights are desirable with reasonably cold winters. Excessive cold is not needed for the production of good fur. Fox pelts are prime by the first of December, before there is much cold weather anywhere. Proper care and feeding have more to do with the quality of fur produced than excessive cold.

Ques.—What is the percentage of loss in foxes both young and old?

Ans.—Have never lost an old fox from disease in nine years breeding. The percentage of loss in young is very small. There is no occasion for loss after they have their eyes open, with proper attention, they are very hardy. At eight months of age a fox has its growth and its pelt is prime.

Ques.—Is the breeding of foxes an experiment?

Ans.—No. The breeding of foxes in captivity is long past the experimental stage. There are over \$30,000,000.00 invested in this industry in Canada and ranches are being started in the United States as fast as the right kind of breeding stock can be had.

Ques.—Is there no danger of over-production of fancy furs when many more ranches are established?

Ans.—No. Not in our day. The fur-bearers that were once so plentiful in the northern states and Canada up to the Arctic Circle are now almost a thing of the past. In the wilds the supply is ever decreasing and the demand rapidly increasing.

Ques.—How many pairs make a good start?

Ans.—Five pairs make a good start and can be taken care of with about as little trouble as one pair.

When writing advertisers, please mention that you saw their advertisement in the "American Fox and Fur Farmer."



**ALASKA SEALSKIN COAT PRESENTED TO
MRS. HARDING BY THE SCOTTISH RITES
MASONS OF ST. LOUIS**

Designed and Manufactured by Otto Kahn, New York
Photographed by Tornello, New York

Courtesy of "Fur Trade Review"

A SPLENDID LINE OF PHOTOGRAPHS

Through the courtesy of Underwood & Underwood, we have been able to secure a fine lot of highly finished photographs of foxes. The approximate size of the photographs is 8 x 10, and we commend them to the use of any of our readers who are interested in the industry. Recently we received a large order for copies of these photographs to be framed and hung up in the office of one of the prominent fox companies in New York State. We are able to furnish these photographs to our subscribers at \$1.50 each, cash with order.

Sanitation versus Animal Parasites on Fur Farms

By WILLIAM A. RILEY
University of Minnesota

IT IS well known that one of the serious difficulties with which fox growers have to cope is infestation of the animals by various intestinal parasites. As in the human species and other animals several of these are especially severe in their effects on young animals.

The common belief is that the only way of combatting these pests is by the frequent use of worm remedies. In reality the standardizing of efficient vermifuges for fox parasites is still in the experimental stage. Many of the much vaunted remedies are practically useless, efficient ones are so poisonous that much is still to be learned regarding the proper dosage—one which will kill the parasites and still leave the fox practically unharmed.

But no matter how fully medical treatment may be developed in the future, the fact will remain that for foxes as for man and domesticated animals, loss from parasites is to be prevented primarily by sanitation. A good illustration of what may be accomplished in this way recently came to my attention.

Samples of feces of foxes were sent me from two different farms, with the request that I make microscopic examination to determine the presence of intestinal parasites. In each case the samples were from some thirty pens and represented material from approximately sixty foxes.

A very striking difference was evident just as soon as the examinations were made. It became still more obvious when the results were tabulated.

From the first lot every sample was infested by hookworms. In most cases the infestation was heavy, many eggs being found in each slide examined. In only four instances could it be reported as light. In addition to the hookworms, most of the samples showed Coccidia, over thirty per cent had Ascaris, twenty per cent whipworms, and a few other forms were noted.

Of the second lot, only a single sample showed heavy infestation with hookworm. On careful search eggs could be found in about half of the samples but in the worst of these the infestation did not more than equal the most favorable cases in the first lot. One-sixth of the samples showed light infestation with Coccidia. No other intestinal parasites were found in spite of more rigid examination than in the case of the first lot.

The reason for these differences was not difficult to see when conditions of the two farms were compared. In both cases the foxes were given careful and intelligent attention as far as general care was concerned. But in the first case, the wire bottom of the cages was on the surface of the ground and no special provision was made for the thorough removal of the droppings in order to prevent soil pollution.

In the second case, the wires were buried under almost a foot of soil. This was scraped at frequent intervals, was turned over during the season, and in addition careful attention was given frequent removal of the droppings of the fox. The pens were well separated and good drainage provided. Moreover, the arrangement of the bottom wires was such as to permit disinfection of the pens by burning over with a spray of burning oil, or by spreading over it and burning oil-soaked straw.

The illustration which I have given, and which could be duplicated several times over from my records serves to emphasize the method of maintenance and spread of diseases due to intestinal animal parasites. In practically all cases those affecting foxes are scattered in the droppings of infected animals and

are conveyed to the pups and other healthy individuals from polluted soil. Every effort devoted to keeping the pens and the dens in sanitary condition will be well repaid. Especially should those embarking upon the business of fox farming look to it that provision is made for maintaining such conditions in the most efficient manner.

FUR-BEARING ANIMALS

From Annual Report of the U. S. Dept. of Agriculture

For centuries fur products have been an important factor in world trade and efforts to open up new sources of supply in America were the stimulus for important exploring expeditions which increased national territorial possessions. The fur trade, which was the forerunner of agricultural and other industrial developments, has now become one of the large and important industries in the business world, providing employment for thousands of skilled and unskilled workers and contributing to the comfort of people who wear fur garments. North America has been the leading continent in the natural production of furs and is also the greatest fur consuming region in the world. Imports of undressed furs into the United States during 1920 were valued at over \$84,400,000, and of dressed furs and manufactured garments in which furs are used, at \$9,131,000. Members of the national organization of fur dressers and dyers dressed during 1920 furs valued at \$52,910,589. The revenue derived by the Federal Government from import duties on articles made of fur amounted to \$15,311,214 in 1920. Exports of furs and manufactures thereof for this period were valued at \$32,886,995. The approximate turnover in the fur industry of the United States during 1920 was \$352,000,000.

Because of the enormous drain upon the natural source of supply, the maintenance and stability of the fur business is dependent upon a far-sighted, constructive program of conservation of native fur-bearers and upon the propagation of certain kinds in captivity or under control. Within a few years in the United States and Canada a growing industry has developed in rearing silver black, and cross foxes. In a survey made during the spring of 1921 there were reported to be 340 fox ranchers in the United States having 4,350 breeding animals, their stock and equipment being valued at more than \$4,280,000. The total number of breeding foxes in the United States will be materially increased by the young of the spring of 1921 which were not reported. Fox ranches were reported in the following States:

California, Colorado, Idaho, Illinois, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, New York, Ohio, Oregon, Pennsylvania, Virginia, Washington and Wisconsin.

A considerable number of people are also rearing skunks, raccoons, minks, muskrats, opossums and beavers.

The bureau has continued its investigations designed to aid the development of the fur industry. These have included the study of the feeding, breeding, and management practices followed by those engaged in the business, and laboratory and other investigations at the Experimental Fur Farm, near Keeseville, N. Y. Important progress has been made in determining foods suitable for maintaining health, growth, and reproduction among foxes, and in obtaining data regarding the physiology of these and of other fur-bearers, such as the normal pulse and respiration rate, which are required as a basis for the detection and diagnosis of disease. Valuable information has been obtained regarding breeding periods, and the causes of mortality and the early growth and development of the young.

The most notable advance has been made in the investigation of diseases to which fur-bearers, especially foxes, are subject; the conditions of pens and surroundings favoring contraction and dissemination of such diseases, and sanitary measures

essential to their prevention; also in the determination of safe and effective remedies, dosage, and methods of administration in cases of disease.

Observations made indicate that the hookworm is one of the most serious parasites that fox ranchers have to contend with and that its occurrence is far more widespread than has heretofore been realized. The unexplained death of many foxes has unquestionably been due directly or indirectly to such infestation. Losses from this parasitic disease are not limited to death and impaired health of foxes but are measured also by reduced commercial value of the pelt produced and by lowered breeding capacity. There is little superficial evidence of light hookworm infestation either in appearance of health or quality of pelt. Foxes so infested, however, are a constant source of danger, for if kept in undesirable types of pens they will eventually acquire heavy infestation and be at all times a means of carrying infestation to all other pens and foxes on a ranch. This feature is brought to the serious attention of all fox ranchers and particularly those who are so fortunate as to have stock free of hookworms or are starting out with a new set of pens and foxes. With the view of bringing this feature forcefully to the attention of breeders and affording them much-needed protection, the department recently promulgated quarantine orders governing importation into the United States of animals that are or may be infested with these parasites or are affected by other communicable diseases of parasitic or bacterial origin.

Especial emphasis is placed upon the careful selection of healthy, vigorous stock having high-pelt quality combined with good fertility and dependable breeding record. That certain breeding strains will prove of higher pelt quality and be more prolific than others is evident. As in other lines of live-stock production, the largest measure of success will be attained by judicious selection of breeding stock, proper sanitation, regularity and skill in feeding, and the adoption of other good-management practices.

A discussion of the fur-bearers and of fur farming in Alaska is contained in the information on that Territory at the end of this report.

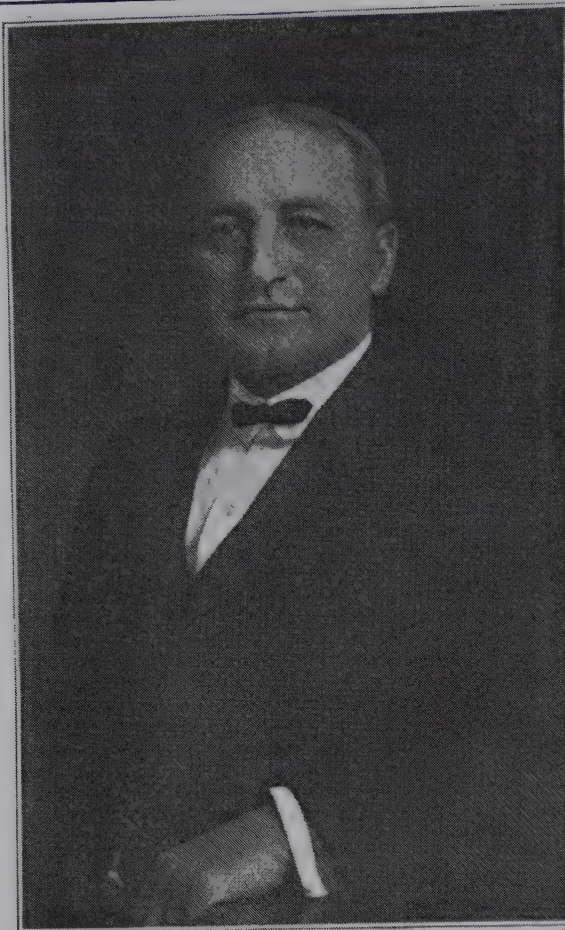
BOOK REVIEWS

"Making Money from Hens." Prof. Lewis explains clearly each up to the minute fact you need to know to run your hen house at a year around profit. He tells how to turn your hen coop into an egg factory at all seasons of the year. The author solves for you not only the riddle of the breeds but explains how to make laying hens and how to overcome many of the difficulties which confront the average person engaged in this profitable and interesting business. Written by Harry R. Lewis, Poultryman, Teacher and Investigator, Professor of Poultry Husbandry, New Jersey State University. Published by J. B. Lippincott Co., Philadelphia, Pa.

"The Rabbit Book," a practical manual on the care of Belgian hares, Flemish giants and other meat and fur producing rabbits. Written by F. L. Washburn, Professor of Economic Vertebrate Zoology, University of Minnesota. Published by J. B. Lippincott Co., Philadelphia, Pa.

MERRILL, WISCONSIN

Doctors J. M. and L. J. O'Reilly of Merrill, Wisconsin, have recently purchased four pairs of silver black foxes, which have been placed on their farm known as "Cloverdale Farm." It is understood that the entire farm will now be devoted to general fur farming. These gentlemen have become convinced that silver black fox farming is profitable. They state that they have become convinced to the extent that they have recently disposed of their entire herd of pure bred Holstein-Friesian cattle.



DR. D. C. McNABB
Pendleton, Ore.

Dr. McNabb Returns Home

A Firm Believer in Fur Farming—Advocates a Bath for
Foxes—A Glimpse of His Ranch

Pendleton, Ore., November 20, 1921.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I am now home from a trip of both business and pleasure, for it was my pleasure to be made so welcome and treated with such great hospitality as I was at the many fox farms I visited on my trip. I visited many fox farms in Minnesota, Wisconsin, Michigan, Maine and Prince Edward Island, Canada. It was a happy and helpful trip to me and it would be to each and every one interested in the fox and fur industry. My trip enabled me to know more and state positively that fur farming is growing and spreading in a wonderful way and I feel sure not any one would make a mistake starting into the business. I was introduced in Prince Edward Island in this way, as the fox farmer from Oregon, who has electric lights and a bath tub in each of his fox pens. Some ranchers never had thought of such. Some seemed to feel such was very unnecessary but if every fur farmer could see and realize fully the benefit to the fur derived from the animals' daily bath, they would install bath tubs immediately considering it a small investment to the big benefit to the fur which means a bigger profit. No difference how cold, even if the fox has to break the ice on the tub, they take their bath each day.

Thanking you for the help I get from reading your magazine and wishing you every success. I am

Yours very truly,

DALE C. McNABB, M. D. V.



ENTRANCE TO RANCH OF DR. D. C. McNABB Pendleton, Ore.

Nation's Wild Life Resources Increase While Liabilities Decline

From United States Department of Agriculture

THE Government's accounting to the American people of its stewardship of their wild animals and birds during the past fiscal year, as exercised through the Bureau of Biological Survey, United States Department of Agriculture, is contained in the bureau's annual report, made public recently.

In its supervision over the wild life resources and liabilities of the Nation, the Government deals with those birds and animals of distinct value to agriculture, commerce, and industry as well as with those injurious species whose natural habits in years past have cost the country many hundreds of millions of dollars. On the asset side of the balance sheet the total mounts; and the liabilities, thanks to the increasing efficiency and thoroughness of the Government's supervision, are shrinking. Sketched in its high lights and dealing only with major facts and totals, the bureau's work during the past year shows among other things the following results:

A saving to farmers and stockmen of about \$14,000,000 during the year—at a cost of \$1,345,220—in the campaign west of the Mississippi against wolves, lynxes and bobcats, coyotes, mountain lions, bears, and rodents.

Destruction by rifle, trap, and poison of approximately 50,000 of the predatory animals.

Continuation, with marked success, of the work begun five years ago of ridding the ranges—and thereby making them safe for grazing—of predatory animals.

Saves \$11,000,000 Annually

An unrelenting campaign against prairie dogs and ground squirrels, during which 18,331,861 acres of Federal, State and private lands were given a first poison treatment and follow-up work was done on 4,402,662 acres. One hundred thousand farmers and stockmen took part in the work; 1,235 tons of poison grains were prepared and distributed under the bureau's supervision; and an annual saving of more than \$11,000,000 is estimated to have been effected through this phase of the bureau's work alone.

Wholesale destruction in Idaho, Oregon, Washington, Nevada, Utah, and Arizona of jack rabbits whose foraging annually damaged alfalfa, cotton, hay, and other crops to the extent of millions of dollars. In one Idaho county alone, 168,166 jack rabbits (actual count) were killed, and in other counties as many as 50,000 jack rabbits were disposed of in organized drives.

The beginning of active and intensive campaigns against meadow mice and pine mice whose depredations in orchards, gardens, and truck farms annually mount into the millions.

Destruction in one campaign alone (in Texas) of 670,000 rats by actual count, and continuation of the Nation-wide campaign against this most destructive and ubiquitous of rodents.

Protection of valuable fur-bearing animals, encouragement of their importation, and study of best methods for successfully raising them. The rearing of silver, black, and cross foxes alone has grown to the extent that during the past year there were 340 fox ranches in this country having 4,350 breeding animals with stock and equipment valued at more than \$4,280,000.

Its investigations have resulted also in protection for the great army of birds which are of inestimable aid to the farmer; checking, so far as possible, the depredations of the few feathered marauders which damage orchards and crops.

Continued and painstaking study of the habits of various

kinds of birds that the valuable ones might more intelligently and definitely be determined.

Survey of the feeding grounds of migratory wild fowl and recommending measures for improving them.

Bird Migration Studies Continued

In a continuation of the Nation-wide investigation on bird migration, the information of the survey covering habits, distribution, and migration of birds has increased and become very valuable.

Further study has been made of such injurious rodents as ground squirrels, pocket gophers, rabbits, kangaroo rats, and pocket mice in order that more effective means against their depredations might be found and made available for use by American farmers.

Under the protecting care of the bureau big game on Government reservations has multiplied fast. The animal census shows 508 buffalo on such reservations now, as compared with 207 five years ago; 504 elk, as compared with 159; 92 antelope, as compared with 40, and so on.

Care of the birds progressed materially during the year through posting and defining boundaries of many of the bird refuges, the planting of grain to provide food and cover, establishment of new reservations, provision of additional warden service at certain reservations, and increased number of patrol boats.

Its administration of the Migratory Bird Treaty Act, which prohibits the shooting of migratory birds on their flight north in the spring and contains restrictions as to the manner in which they may be hunted during the open seasons, and of the Lacey Act, which regulates interstate shipments of wild animals and game, resulted in the apprehension of nearly 1,000 alleged violators of the Federal game laws and the securing of more than 500 convictions, in which fines were assessed ranging from \$1 to \$500 each.

Numerous seizures of migratory game birds illegally killed or possessed, the birds being disposed of by the bureau with the consent of the accused by gift to hospitals or charitable institutions for use as food, and seizures of contraband plumes and mounted specimens of migratory birds of an estimated value of \$5,000.

A notable increase among the migratory game birds is attributed almost solely to the limitation of spring shooting, the nonsale of migratory game birds, and the establishment of a uniform bag limit, the three fundamental restrictions made possible by the Migratory Bird Treaty Act, according to the report.

Permits were issued for the importation from foreign countries of 182,052 birds and 5,368 animals, the latter including 1,574 black or silver foxes from Canada.

The foregoing states in bare outline some of the bureau's activities within the United States. In Alaska the bureau assumed, under the department, jurisdiction over all land fur-bearing animals, continued its investigation as to their habits and best methods for their protection, and enforced the laws prohibiting or restricting the killing of such animals. One of the chief items of interest in connection with the bureau's work in Alaska was its study of the reindeer industry in the Territory, with a view to establishing it on a sound basis by improving the health and general condition of the herds.

PROTECTION OF LAND FUR-BEARING ANIMALS IN ALASKA

From Bureau of Biological Survey

Under the appropriation act for the department for the fiscal year covered by this report, the Secretary of Agriculture was authorized to exercise jurisdiction heretofore exercised by the Secretary of Commerce over all land fur-bearing animals in Alaska. The work was assigned to the Biological Survey, and immediate steps were taken to carry out the provisions of section 1956 of the Revised Statutes, as amended, which provides that no otter, mink, marten, or other land fur-bearing animal shall be killed except under such regulations as the Secretary may prescribe. On July 1, 1920, regulations were accordingly promulgated in which open seasons were provided for killing land fur-bearers in the Territory, with the exception of martens and beavers. On October 25, 1920, these regulations were amended extending the open season one month for trapping foxes in the southern part of the Territory.

A chief fur warden was appointed with headquarters at Juneau, and deputies were stationed at Akhiok, Atka, Fairbanks, Igloo, Killisnoo, Unalakleet, Unalaska, and Wrangell. Four employees of the Bureau of Education of the Department of the Interior on the Seward Peninsula were appointed as co-operating deputy fur wardens. In connection with the administration of this work, excellent co-operation has been extended by the Customs Division, Bureau of Education, Department of Justice agents in Alaska, the Coast Guard Service, and the Bureau of Fisheries. In addition to the fur wardens in Alaska, a warden and two deputies are stationed in the United States—at San Francisco, Seattle, and Tacoma—to investigate illegal shipments from Alaska of furs arriving at these ports. Although the funds available are inadequate to enforce the laws for the protection of the land fur-bearers of Alaska, it has been possible to exercise a restraining influence in many parts of the Territory and thus to lessen greatly the illegal taking of furs.

A serious situation now exists as to the future fur supply of Alaska through the use of poison in many remote districts and through overtrapping. These conditions prevail not only because of the small appropriation available for enforcing the fur law and regulations, but because the law is inadequate to effect its purpose. It is hoped that a new law dealing with the fur-bearers may be enacted in the near future.

Six seizures of contraband furs were made—one of which was later released. These included skins of 43 beavers, 13 martens, and one land otter. A trapper living near the Canadian boundary line on Fortymile River was convicted and fined \$100 for killing 18 martens. There are now in possession of the fur warden stationed at Fairbanks, pending final disposition by the Federal Court, 714 marten and 699 beaver skins, seized at Tanana and Eagle in 1919 by a United States deputy marshal. The Bureau of Fisheries turned over to the Biological Survey the proceeds from sales of furs seized by its agents prior to July 1, 1920, but not sold until after that date, amounting to \$3,820.74.

Through co-operation of the Postmaster General, postmasters in Alaska were instructed to report to this Bureau all shipments of furs made by mail, and arrangements were also made with commercial transportation companies to report fur shipments made by express and freight. The value of the furs shipped out of Alaska, reported to the bureau for the period from November 16, 1919, to December 1, 1920, amounted to \$1,079,668.86, exclusive of pelts of blue and white foxes from the Pribilof Islands, which are under the exclusive jurisdiction of the Bureau of Fisheries.

While the total number of furs shipped during the period stated exceeds that of the previous year by 27,680, the value is \$299,678.80 less, because of a decrease in prices. The following table shows the number of the principal pelts shipped and their

value:

Kinds of furs	Number	Value	Kinds of furs	Number	Value
Muskrat	138,443	\$276,886	Land otter	3,017	\$75,425
Mink	36,115	252,805	Blue fox	569	48,365
White fox	4,943	173,005	Cross fox	937	42,185
Red fox	6,469	97,035	Silver fox	328	41,000

Fur Farming in Alaska

The bureau has supervision of the leasing of ten islands off the coast of southern Alaska for fox farming purposes. Originally twelve islands were transferred from the Department of Commerce, but two of these—Little Naked (Storey) and Carlson (Grafton) Islands, being situated within the boundaries of the Chugach National Forest—were, with the approval of the Secretary, turned over to the Forest Service. The ten islands remaining under the jurisdiction of the bureau are as follows:

Aghiuk, one of the Semidi Islands; Chirikof, southwest of Kodiak Island; Chowiet, one of the Semidi Islands; Elizabeth, one of the Chugach Islands; Little Konuiji, one of the Shumagin Group; Long, in Chiniok Bay, east of Kodiak Island; Marmot, east of Afognak Island; Middleton, Gulf of Alaska; Pearl, one of the Chugach Islands; Simeonof, one of the Shumagin Group.

All but the last named of these islands were leased during the year for fox farming purposes—under the plan established by the Bureau of Fisheries prior to July 1, 1920—for periods of five years to the highest bidder, at about \$200 a year. Through a co-operative arrangement between the Biological Survey and the Forest Service, a uniform policy has been adopted to cover the use for fur farming purposes of islands in the Aleutian Chain and along the southern and southeastern coast of Alaska. Under this plan the rental will be \$25 a year during the first three years of occupation, and at the expiration of this period the occupant of the island will be given the option of renewal, with a revision of the amount of rent to be paid according to the value of the location, but in no case to amount to enough to be burdensome to him. It is believed that the establishment of a uniform system of permits and rental rates covering the use of Alaskan islands for fur farming purposes will greatly assist in developing the industry. The islands vary in area from forty acres or less to several thousand acres. Blue foxes are the principal animals farmed on all these islands, although black fox farming is also established on some of them. The blue foxes are practically running free on the islands, but most of the black or silver foxes are kept in pens.

In the Aleutian Chain the use of islands for fox farming purposes is being granted to natives free of charge, owing to the lack of resources and to the difficulty they have in maintaining themselves, but the regular rental is charged for occupation by others.

More than fifty islands are occupied for fur farming purposes in the Aleutian Chain. On some of the other islands foxes have been introduced for many years and are being trapped. During the winter trapping season of 1920 and 1921 the following fox skins of various kinds were taken in the Aleutian Chain:

Red foxes	755
Cross foxes	51
Silver foxes	43
Blue foxes	414
White foxes	10
Total	1,273

A new feature of the fur farming industry in Alaska that is being observed with much interest is the propagation of martens. Four permits have been issued to residents of southeastern Alaska to capture a limited number of these important fur-bearers for the purpose of stocking the forests on some of the islands.

It is estimated that at the present time about 225 Alaskans are engaged in the fur farming industry in the Territory, with a considerable investment of capital. The industry is rapidly growing and gives indication of becoming an important one. One drawback to its development is the fact that many islands along the southern coast lie outside the national forests and the Aleutian Islands Bird Reservation and remain unoccupied because no legal authority exists by which they may be leased. It is hoped that legislation may be enacted shortly which will render these islands similarly available. This is particularly important in view of the fact that they are of little or no value for any other purpose.

FOX FARMING IN NORTH DAKOTA

From The Dakota Farmer, Aberdeen, S. D.

Breeding of the silver black fox is proving one of North Dakota's greatest enterprises. In 1917, the late Judge J. F. Cowan of Devils Lake, having read of the great success of the breeders of silver black foxes in Canada, got in correspondence with M. B. Chase who was at that time back in the interior of Canada running a trading post and breeding foxes. It was mainly through the efforts of the Judge that the industry was established at St. John, N. D., and is being carried on by The North Dakota Silver Black Fox and Investment Company. This company was incorporated in the spring of 1917. To-day they own 500 acres of land on one of North Dakota's most beautiful lakes. The buildings on the ranch are all modern—electric lighted, etc., and the land is in a high state of cultivation. The wheat crop this year yielded over 30 bushels per acre and other crops, including corn, are doing equally well. This company also has about 50 head of pure-bred Shorthorn cattle and Percheron horses upon their ranch as a side line. However, the raising of foxes is their principal business. As to whether fur farming has proven a success in North Dakota, it is only necessary to state that the North Dakota company has at this time 74 high-grade, silver black foxes upon their ranch raised from five pair with which the ranch was started and they have recently sold and delivered \$35,000.00 worth of breeding stock to the Great Falls Silver Black Fox Company, of Great Falls, Montana, who are starting a modern ranch at Great Falls. M. B. Chase, president and general manager of the North Dakota ranch, states without fear of contradiction that North Dakota, South Dakota, Montana and many other western states have as good a climate for the successful production of fur-bearing animals in captivity as any place to be found in Canada and with an abundance of cheap feed for foxes.

The Government has a fox ranch on an island off the coast of Alaska from which they sell something like a quarter of a million dollars worth of furs annually, and are now establishing a ranch in the state of New York for experimental purposes. It seems that fur farming will soon take its place among our great industries in the United States as well as in Canada. With fur-bearing animals nearly a thing of the past in the wilds, something must be done to supply the ever-increasing demand for furs. Many ranches are being established in Maine, New Hampshire, Vermont, Pennsylvania and other eastern states. With their ideal climatic conditions and an abundance of cheap feed, will the western states allow eastern states to get the jump on them in this most important industry, as Canada did on the United States? We believe not, for western people are not slow to take advantage of business propositions. They have proven themselves builders in the past. This is a big proposition which is worthy of investigation.

When writing advertisers, please mention that you saw their advertisement in the "American Fox and Fur Farmer."

CORRESPONDENCE

Prairie City, Ore., Dec. 11, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

I especially liked the article on "Ranch Equipment" and "Belgian Hares as Meat Producers" in your November issue because they make definite statements of just what they mean, giving dimensions, cost, where articles can be obtained, and examples of what are considered goods of merit.

I also very much enjoyed the articles on "Muskrat Farming" as well as the other articles I have read.

Sincerely yours,

WALLACE W. SMITH.

Pontiac, Michigan, November 23, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

Enclosed find check for subscription to "American Fox and Fur Farmer." I feel that no rancher can afford to be without this valuable magazine.

Yours very truly,

W. H. WILBUR.

Boston, Mass., December 5, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

I believe that the "American Fox and Fur Farmer" is a first class publication in every way. I like it and see in each issue an advance over the last.

Very truly yours,

SAMUEL F. WADSWORTH, M. D. V.

Pratt, Kansas, November 29, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

Please accept my thanks for the October copy of "The American Fox and Fur Farmer" which you so kindly sent to this Institution. I find that it contains a splendid assortment of good advice concerning the success of the fur industry.

Sincerely yours,

ALVAN CLAPP,
State Fish and Game Department.

St. Paul, Minn., November 30, 1921.

American Fox and Fur Farmer

Utica, New York

Gentlemen:—

I have been much pleased with the topics of your magazine, which I have seen. I wish you success in your undertaking.

Very sincerely yours,

WILLIAM A. RILEY.

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News Notes of American Fox Breeders Association

Matters of Interest to All Fox Ranchers

By GEORGE A. BRACKETT

To the live fox industry which must be worked out, is a **HAT** there are many problems of vital importance relating fact that every American Breeder of live foxes is very much aware of. When or which item to attack first and get out of the way, is a problem in itself to some extent. It probably is not generally known outside of a few, that the Canadian Breeders keep a salaried man, who spends most of his time between Washington, D. C., the Western and Central States and occasionally in Canada, giving his time and effort to fox legislation and propaganda. He is a very able man and has succeeded in his work wonderfully well, so the saying goes. This means that the Fox Breeders of the United States must stick together and work together and back up the Association. The elements who are in the industry for what they can get out of it to-day, care nothing about to-morrow or the protection of the interests of the breeders of the United States, or of the live fox industry itself. This element must and will be driven from the field or the American Fox Breeders Association will give up; and right here, you can take the word of every "Office Holder" in charge of its affairs, that the A. F. B. A. wasn't incorporated with any idea of giving up, nor has it the slightest intention of so doing.

That there are problems before it, is true, but it is just as true that the A. F. B. A. is going to solve those problems, sooner or later, for its members are of that sort. The principles of the American Fox Breeders Association are for the protection and advancement of the Industry as a whole and most particularly for the breeders of the United States.

Its Tariff Committee voted to ask Congress for a thirty-five per cent. duty on all foxes imported into the United States. Its Standard Committee delegates "accepted" and the 'Association now works,' under the so called Universal Standard, as framed and accepted at the convention held in Montreal September 12, 1921, where the delegates from two Associations from the United States and two Canadian Associations were met to draw up a Standard.

The A. F. B. A. wishes and is working to have the "Quarantine Act," on live foxes, enforced as it was enacted, and *not as Amended* as it is now. If any members of the Association that have either too many males or too many females, will send to this office a letter stating what they would like to exchange, they will be put in touch with the other fellow member who wishes to exchange. There is no charge or cost to a member for this service. It is part of the duties of the Secretary to assist the members in every way he can.

The mid-winter meeting, to be held January 18, will be well worth a long journey to attend. The ablest speakers and men experienced in all matters pertaining to live foxes, from Pedigree to Parasites, will take turns in telling you things they know and have learned. Also we will try and solve some of those problems.

The following is an abstract from a letter received from a rancher who had his whole ranch inspected, and his foxes treated by the Government expert, Dr. Karl B. Hanson. "My foxes are all in fine shape. There is no trace of any kind of disease. Since the Government expert treated them every fox has gained about three pounds or more, and all are as full of life as can be. No signs of sore eyes or any kind of trouble. I certainly advise every rancher to have his ranch inspected and all his foxes treated whether they show any signs of disease or not. I never intend again to place any fox in my ranch until

it has passed Government inspection."

Remember, when mating your foxes this year, that only the fox whose pelt is clear and lustrous, can ever expect to be classed as a high grade fox, or whose pelt will command a high price. A fox with a dull coat is only one-half as good and may not secure advanced registration, if properly scored. The fox showing a tinge of rust, even in the "inside of the ears," is hopelessly out of it from this date. The fox with a tinge or rust has no place in the ranch of a breeder who is going to succeed. Better pull out any which exist, as they will cost you more in money and prestige than you can ever get back from them. Better own one pair of the clear lustrous type, than twenty with a tinge or rust showing, "even in the ears."

Never purchase or examine a fox by artificial light. It cannot be done rightly under such conditions. Also be guarded against reflected lights in examining the pelt. Get the direct bright light of a clear day. The best, though hardest test, is close examination under direct sunlight, then you may be sure of its color.

The new book of By-Laws, rules and regulations, will be put in the hands of the Publishers as soon as a few more of the most important rulings are enacted. Copies will be mailed to all members. The dealers in silver fox pelts are in the market with an urgent demand for pelts showing from one-half to three-quarters silver. The dark pelts are neglected at present and are not moving freely even at reduced values. *Do not forget the date of the Midwinter Meeting, January 18, 1922.*

Something to be remembered about membership in the American Fox Breeders Associations is this, "Your membership will not help you in the least way in selling poor grade foxes nor will the Association be a party to any misrepresentation of facts. The American Fox Breeders Association calls a Spade a Spade and will continue to do so as long as the present regime holds forth. As an illustration to the last quotation we will quote from a letter of the same kind we are constantly receiving.

"Secy. A. F. B. A.:—Having just entered the Fox industry and of course, finding it necessary to transact some of my business with firms who are unknown to me I should like to ask you if you can recommend..... Also, do you know if the..... Co. are a dependable organization to deal with. After getting more thoroughly in the fox business I hope to become affiliated with the different Associations more closely. I thank you very kindly for the information you might give me on these two, and assure you it will be treated confidentially."

The answer to this letter was as follows:

"Dear Sir:—Your favor is at hand asking for information re..... and..... M....., is on our list of members although I have never met him personally nor do I know of his ever attending any of the meetings of the Association. To the best of my knowledge M..... has had no foxes registered with the American Fox Breeders Association. Also I have never heard anything derogatory about either M..... or any of his dealings. As to..... Co., can only say "I never heard of them." Will you please write me and give such information of them as you can. It is the principle of the A. F. B. A. to look into any direct dealings in live foxes by its members so that we may positively answer such letters as you write us. I shall be pleased to give you any and all such information regarding the Association work and affairs and trust that your venture into the live fox industry may prove a success.

GEORGE BRACKETT, Secretary.

A MOURNFUL TALE OF A "GONE COON"

One of the Sort of Stories Roosevelt Would Call "Nature Faking"—You'll Have to Read All of It to Find Out What It's About

From "New Ulm Review," New Ulm, Minn.

All out o'luck, was the 'coon that left his plummy tail hanging out of the window of his house, a hollow tree on the Schugel farm in Cottonwood township the night before one of the recent heavy, wet snowfalls. Whether Jimmy Coon left his tail out as a signal to some playmate who was to come by early in the morning and wake Jimmy up by a playful pull on the afore-said appendage or whether Jimmy was out so late the night before that he didn't quite realize when he came home that he was "all in" but his tail will never be known. For Jimmy no longer roams the woods along the Cottonwood and no one else knows just why the little coon left his bushy tail outside his house when he went to sleep that night. The story had a tragic ending for Jimmy as most stories of wood creatures do have.

In some respects the story recalls the one they used to tell of the bear that Reddy Fox persuaded to sit on the ice and use his tail for bait for the fish. The bear sat there, you remember the story ran, until his tail was solidly frozen in. When Bruin, tired of his fishing job, got up to leave his post his beautiful, big, round, fat, tail stayed behind, stuck fast in the ice, and since that time the bears have had to go about the world, without any tails.

The story of Jimmy Coon's tail is something like that, and if it had not been for a young hunter, perhaps we should have had a lot of tailless coons scampering about the woods of Southern Minnesota in days to come, for the poor little coon who left his tail hanging outside his door that snowy night awoke in the morning to find that it was frozen tight to the side of the tree he called home. The snow had drifted in around the bark of the tree and the hairs of the tail, had melted a little and frozen again and the poor little woods creature was caught fast, doomed to a slow, painful exhaustion through the cold winter days that followed. But fate, after all, is sometimes merciful, and the poor, trapped creature was relieved of his sufferings by the young hunter who found him and put an end to that little coon's adventures.

All this may sound like a nature-faking tale, but it is the truth as it was told to us. If you want to know how near the truth it is, ask John Polta, driver for Schell's.

Carl F. Neuman, president of the Grand Rapids Silver Black Fox Co., of Grand Rapids, Michigan, is one of the pioneer fox ranchers of Michigan. He became interested in the industry several years ago. The ranch is ideally situated on the Byron Center road, seven miles from the heart of the city of Grand Rapids, Michigan, and under the management of Mr. Neuman, has been unusually successful, so much so, that other prominent fox men have become associated with Mr. Neuman with the determination of making the Grand Rapids Silver Black Fox Company, the largest and best equipped ranch in the country, raising only the highest grade silver black fox of superior quality. The ranch has now twenty-five pair of exceptionally fine breeders for foundation stock. Every animal is registered and has a certified pedigree.

Mr. Neuman is vice-president of the Silver Black Fox Breeders Association of Michigan and is a very enthusiastic and conscientious worker.

SHIP FOXES FROM CANADA TO GERMANY

Former Uticans Control Donnacona Silver Fox Ranches at Baie St. Paul, Canada

From "Utica Herald-Dispatch," November 23, 1921

"The Donnacona Silver Fox Ranches," situated at Baie St. Paul, Canada, have recently made a sale to parties in Germany of some fine grade silver foxes. The foxes were crated in individual boxes six feet square and provided with food for a journey of thirty days, the length of time they will be enroute before reaching their destination.

The Donnacona Silver Fox Ranches which are controlled by Robert P. Kernan of Quebec and R. E. Studor of Baie St. Paul, Canada, both formerly of Utica, contain only the choicest of the standard bred silver black fox, and are headed by "Donnacona," a beautiful Prince Edward Island strain male.

Mr. Fred Bauman of Grand Rapids, Michigan, is a director of the Silver Black Fox Breeders Association of Michigan. Mr. Bauman is one of Grand Rapids' progressive business men and has been engaged in the raising of silver black foxes for a number of years, with marked success.

His ranch is located about eight miles from the city of Grand Rapids, near the town of Ada. He is breeding twenty pairs of registered silver black fox this year. He is one of the live wires in the fox industry and we can look for big things from Mr. Bauman.

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A Thoroughbred

FUR---The Great Industry of Luxury

America, the Pioneer in the Trading of Pelts of Animals, Once More Ranks as the Premier Mart of the World—
Fabulous Sums are Netted at the Great Auctions in St. Louis and Other Centers

By N. B. KASTIL

From "American Industries," September, 1921

And similar manufactured goods in exchange for animal with the Indians in the bartering of beads and trinkets. HE early American colonists carried on an important traffic skins. The Indians spent most of their time in hunting and trapping and brought in valuable skins which they were only too eager to exchange for the bright cloth and bits of ornaments which delighted their eyes and appealed to their native love of adornment. The colonists, in their turn sent the furs back to Europe and in this simple trading the great international fur trade of the present time had its remote and humble origin.

As the American settlers found their way westward, the fur trade became more and more important. Throughout the great Northwest Territory the Indians, assured of a ready market for their skins brought in the spoils of each season's trapping, to the nearest trading posts, and gradually there grew up flourishing fur centers situated at the junctions of the great rivers to which were brought furs from hundreds of square miles of territory.

St. Louis was the most important of these early fur centers, because of its fortunate geographical situation at the mouth of the Missouri River, where it flows into the Mississippi. The furs were brought down by boat from the northern trapping grounds and sold to traders and dealers in the St. Louis market. St. Louis has continued to grow in importance as a fur center and since the war undermined the prestige of the London market, it ranks as the premier fur selling market of the world, where great fur auctions in which millions of dollars' worth of furs change hands are held three times each year.

North American furs—those trapped in the United States and Alaska and the Canadian provinces—are considered among the finest in the world. The four staple skins are muskrat, raccoon, opossum and skunk. Of these muskrat is far and away the most important in the fur trade. It has been called the "United States Steel" of the fur market and upon its price fluctuations the entire market hinges. Because of the climatic conditions the Canadian furs are better than those trapped in the United States. The Labrador or Northeastern beaver, trapped in the province of Labrador and the Canadian muskrat are considered in the fur trade to be two of the finest specimens of fur found anywhere. Prince Edward Island also has the finest silver fox farms in the world.

Alaska, although it has almost every variety of fur-bearing animal within its borders, is especially famed for its seals. The finest seals come from the United States Government preserves—indeed, the Alaska seals are practically a government monopoly, as there are very few privately owned seal preserves and the seals raised on them are much less valuable than the government animals.

Trapping in the United States is at the present time very largely an adjunct of farming. The great Northwest where the finest fur-bearing animals in the United States are trapped, is also the region of great farms and ranches. The owners and farmers of these great farms took up trapping originally to rid their farms of the many fur animals who, so far as farming was concerned, were nothing more than pests which destroyed the crops and which were killed off not so much for their skins as to exterminate them.

As the value of all sorts of furs increased so tremendously,

however, the farmer found it to his advantage to kill off his pests scientifically and sell the skins in the fur market.

The methods of getting skins to the market are, for all practical purposes, two in number. They are shipped direct to buying firms, or collection houses, as they are called, or they are sent to the big fur auctions, where sales are held several times a year. In New York there are many collection houses which deal directly with fur trappers. They have their mailing lists of clients and each spring at the end of the trapping season, they send out a price list giving the prices which they are quoting for that season on the various classes of skins. The trappers send in the skins they have collected during the season and they are carefully inspected by experts in the collection house. They are then graded and a price estimate put on them. The trapper is informed as to the prices set and if he accepts them the furs are kept and put through the usual stages of dressing and dyeing. If the trapper does not accept the prices set by the collection house, the furs are sent back to him.

These collection houses do a large business with individual small trappers but the bulk of the furs trapped each season,



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especially by the large trappers, find their way to the fur auctions. The fur auctions in St. Louis, since that city has become in the last few years the greatest primary market in the world are the most important both nationally and internationally. They are held three times a year, winter, spring and fall. The spring auction, coming as it does at the end of the shopping season, which is, roughly, from October to April, the largest one of the year. Furs are shipped in to St. Louis from all over the great Northwest—the United States, Canada and Alaska. Money advances are made to the shippers on receipt of the furs. These advances are regulated by money conditions and the state of the fur market but in general they approximate fifty per cent. of the invoiced value of the skins. Sample bundles are made up so that prospective buyers can inspect them in warehouses and see the quality of furs which are being put on sale.

The fur auctions are conducted in much the same manner as any other auction. Anyone is admitted to the auction who can establish his business reputation and credit and the goods are disposed of to the highest bidder in the usual fashion. A selling fee of five per cent. on the value of the furs is charged to the sellers. The buyers are required to pay twenty-five per cent. of the buying price at the time the sale is made and the balance on or before "prompt day" which is set for a date usually about three months after the close of the auction.

The St. Louis fur auction is the only place in which are sold the famous government Alaska seals. A St. Louis firm, the biggest furriers in the world who practically control the fur auction in St. Louis, are the sole agents for the United States Government. At every fur auction there is present a representative of the Secretary of Commerce, who is in charge of the government seal preserves. The number of seals put on the market each year depends upon the condition of the herd and is very carefully regulated. At the last auction about 9,000 seals were put on sale. The government sends also to the auction blue and white fox skins which are trapped on government preserves in Alaska.

The value of the furs which change hands in the fur

auctions has greatly increased in the last two or three years. St. Louis as a fur center now occupies the position formerly held by London as the greatest clearing house for skins in the world. At the last auction held in St. Louis the furs auctioned off were valued at approximately \$27,000,000 and included, in addition to the 9,000 seal skins, fox, skunk, marten and muskrat skins in quantities of hundreds of thousands and equally large numbers of less valuable furs.

The fur industry of the United States was raised to its present high place through the conditions brought about by the war. London, before the European war, was and had been for many years the premier fur market of the world. The far-reaching and wealthy Hudson Bay Company, which has dominated the Canadian fur regions ever since its founding two hundred and fifty years ago, sent practically all of its skins to the London market. Great Britain also had vast fur interests in Russia and Siberia and this resulted in the valuable Russian furs finding their way into the London auctions. Leipzig was the center of the fur dyeing industry of the world. Germany was supreme in the dye market in any case before the war and "Leipzig-dyed" was a phrase which denoted the height of excellence in fur dyeing.

To-day that has all been changed. London has been forced through the bitter exigencies of war to yield her high place to St. Louis and New York is now the center of the fur dyeing industry. New York is also the greatest fur manufacturing center of the world. Over seventy-five per cent. of the fur manufacturing in the United States is done in the city of New York. There are about 1,200 manufacturing furriers in New York to-day, and nearly as many raw fur dealers, as against the scant three hundred of pre-war days. In these 1,200 fur shops are employed over 10,000 fur workers, who have the distinction of being the highest paid workers in any American industry. This is indeed a distinction in view of the extremely high wage scale that exists throughout the general ranks of American industry, but a glance at the present wage scale among the manufacturing furriers shows that it is well-merited. Fur workers are of course highly skilled. An expert cutter or



Treating Silver Fox Skins—These Valuable Pelts must be Carefully Handled

matcher becomes expert only after many years of working at his trade and he is therefore worth high wages. But even so, the increase in fur wages has been phenomenal. Since 1912 there has been an increase of 340 per cent. and the present wage scale is practically as follows: Cutter and matcher, \$150 to \$175 a week; operator, \$100 to \$150 a week; finisher and nailer, \$60 to \$75 a week. Indeed, a fur worker, even the least skilled, who earns less than \$75 a week is hardly to be found except among the young apprentices.

Some idea of the present value of the fur industry in the United States may be gained from figures on recent taxes paid to the United States Government by fur dealers and manufacturers. A ten per cent. excise tax on furs was levied by the government as a part of its wartime taxation measures. This tax went into effect on February 25, 1919. In the ten months ending with January 1, 1920, the amount paid into the Treasury from the fur trade was approximately \$11,000,000, indicating that the value of the business done during that period was close to \$110,000,000.

The tremendous expansion in the fur trade has not been confined to business in the United States, for there has been increased import and export trading as well. The war gave the American fur man his opportunity in extending his activities to other lands than his own and one of his great achievements was the establishment of American fur trading posts in Siberia. Trade through these posts was carried on chiefly by a system of barter whereby furs were exchanged for various necessities of life. It was largely through these posts that trade relations with Siberia were sustained. The Siberian co-operative societies have been active in the fur traffic between their country and the United States. Many of the furs sold in the

United States in recent fur sales have been marked with the name of some co-operative member in far-away Siberia to whom the profits of the sale are sent directly in accordance with the rules of the societies.

Recent foreign trade figures on the interchange of furs, raw and manufactured, between the United States and foreign countries, indicate the growing prominence of that country in the international fur trade. For the ten months ending with October, 1919, there were 111,967,456 undressed skins imported into the United States, valued at \$54,525,378. In 1918, 29,000,000 skins were imported and in 1917 only 21,000. Dressed skins, to the number of 1,665,144, valued at \$2,341,551. In 1918 dressed skins imported were valued at \$819,303 and in 1917 at \$1,411,673.

Along with the growth of the imports, there has been a great increase in the exportation of furs. Raw furs valued at \$13,210,881 were exported from the United States in the ten months ending October, 1919, as against \$8,608,091 in 1918 and \$8,084,524 in 1917. More than half of the raw furs for 1919 went to the United Kingdom. The exports of dressed and manufactured skins has likewise kept pace. For the same period of 1919 these were valued at \$6,480,000, as compared with \$1,796,000 in 1918 and \$2,810,142 in 1917.

The United States has also won for itself an enviable position in the creation of styles for fur garments and American creations are now accepted even in the European style centers. Much has been done also to secure the future of the fur trade. The Government has taken an active interest in breeding fine fur animals and has silver and black fox farms as well as the famous seal preserves in Alaska and Alaskan silver, black, and blue fox preserves.

The government has also stimulated the American farmer to new activity in utilizing the skins of the pests which he destroys on his farms. The Biological Survey aids the farmer to



Two Hundred Thousand Dollars Worth of Assorted Furs in One Workroom

exterminate these pests scientifically and assists him to market the skins whenever they have any value.

So successful has been this government co-operation and aid that the furs obtained in pest extermination form a large and valuable part of the total fur supply of the United States, exclusive of Alaska.

The high position of the United States in the fur trade of the world is demonstrated anew by recent information to the effect that at the present time over \$40,000,000 worth of furs are stored in warehouses in New York City alone. This vast store of furs is declared to present more in value and amount than the furs offered in the spring auctions in the United States or in Europe, and is more than half of the raw and dressed but

unmanufactured skins in the United States and Canada. According to estimates made by the dealers who conduct the International Fur Exchange in St. Louis there are in its own hands, the stores of other auction companies and private dealers in the United States and Canada, more than \$75,000,000 worth of furs. At the spring auctions the St. Louis concern's offerings amounted to about \$30,000,000 and the New York auction stock was valued at \$15,000,000. Such huge transactions indicate emphatically that the United States is the world's great fur market to-day.

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BELGIAN HARES AS MEAT PRODUCERS

By F. L. WASHBURN

Division of Entomology and Economic Zoology, University of Minnesota

(Continued from November Number)

An unprofitable doe should not be kept. Sometimes trying another buck brings results. Do not breed stock two years old or more. If necessary to do this, mate a young buck to an old doe or a young doe to an old buck. Avoid overfeeding; a doe fat at littering time may kill her young.

The doe should be placed in the buck's hutch. Never place the buck in the hutch of the doe. If the buck, after mounting, falls over on his side, mating is accomplished and the doe may be returned to her own hutch. As a test she may be again placed with the buck a week or ten days later. If she whimpers and avoids his attentions, it is a fairly good sign that she is with young. A father may be bred to a daughter and a son to a mother. This is frequently practiced to preserve form and color but does not make for size. Mating brother and sister is a common usage, though too much inbreeding should be avoided. The date of breeding should be noted and the date of probable kindling (littering). This will be thirty or thirty-one days after breeding. Several days before this the animal should be given plenty of clean, dry straw in the nest box and the day before she is due see that she has plenty of water, hay, grain, and green food or roots in her hutch. Sometimes, and particularly in the case of a young doe bred for the first time she may be extremely nervous and kill and partially devour her young. For this reason does about to kindle should not be disturbed. A piece of pork or salt beef three or four inches square, if left in the hutch the day before kindling, will afford something for a young mother to gnaw and her young will be spared. This weakness is not very common and is generally temporary, affecting only the first brood of a young doe. Any doe that habitually kills her young is fit only for the axe. Under no consideration should the buck be allowed in the same compartment with a doe at littering time and in general it may be said that the adult buck and doe should be together only at mating. A bred doe should be kept in the hutch or run by herself, and anything likely to disturb or frighten her should be avoided.

The nest box should not be opened for two or three days after the doe kindles, but then the litter should be carefully examined in order to detect and remove dead individuals, if there are any, or to kill any runts if the litter is too large.

The number in a litter suitable for a doe to rear is an important factor and one should not allow his ambition to influence him in putting too great a task on a doe. At the same time there is a great difference in the capabilities of does in this

respect. Some does successfully raise ten or twelve youngsters. Other does, evidently poor mothers, will hardly carry through six, though the latter number is generally easily taken care of by the normal doe. If two does litter within a day or two of each other and one has few young and the other many, some of the latter litter may be placed with that of the first doe. This should be done in the morning, so that the introduced youngsters may acquire the odor of the true brood before the doe nurses, and the foster mother must have her attention occupied in the other part of the hutch with some attractive food while the transfer is going on. If a doe habitually rears weak, puny young, disposed to slobbers (indigestion) or other ills, her litter should be cut down to three or four individuals or she should be disposed of as undesirable.

Rabbits should not be lifted by the ears but by the skin back of the ears, one hand being placed under the hind quarters to help support the weight. Does heavy with young should not be handled unless absolutely necessary. Never breed diseased rabbits.

Care of Doe With Young

Nursing does should be fed nearly twice as much as those without young and three times a day. Grain, hay, and roots should be increased at least a half in each case and an extra feed of some milk-producing material at noon is very desirable. Bread is good for this purpose, bread and milk is excellent, or milk alone, if they will take it. Here again a great difference in animals is noted, many rabbits being extremely fond of milk while others will not touch it.

Care of Young Stock

The eyes of the young will open in about two weeks after birth and very shortly thereafter the young rabbits will come out of the nest box to feed with their mother. From this time until they are two months old is a critical period and the utmost care should be used in feeding. Whole oats must be kept away from the young when first weaned. Feed old bread or crushed oats or rolled barley. Rolled oats are excellent at this time. Clover hay at night with a little green food, fresh alfalfa or clover is desirable. Normally, the young will keep well on such a diet. Should "slobbers," or indigestion, appear, an immediate change of food is necessary. (See Diseases.) At noon a teed of bread and milk is very desirable and a great help in

increasing the weight of the youngsters, though not absolutely necessary. A piece of carrot or mangel occasionally is much relished and is wholesome.

When the young are two months old they may be separated from the mother, and they should then be able to eat the same food given to adults, care being taken not to feed much green food at first. When convenient or possible it is a good plan at this age to force the youngsters, giving them a good start and thus insuring heavy adults. The best way to do this is to give a daily feed of bread and fresh milk. Under no circumstances feed sour milk. However, milk or bread and milk are not absolutely necessary in rearing young rabbits, and under some conditions make an expensive food. Rabbits two or three months old require only about half the amount of food given to adults, but the ration should be gradually increased as they grow older. Young Flemish more than four months old will eat as much as adults, or more; hence it is advantageous to use them on the table or to sell them at that age. Exercise is desirable for the growing young, and a run four by fifteen feet will accommodate twelve or fifteen. Crowding should be avoided. Weak or sickly individuals should be separated from the rest. Runs and hutches occupied by young rabbits should be kept clean and dry. The soil in the run should be changed occasionally to avoid contamination with coccidiosis germs.

Belgian bucks should be separated when three months old. New Zealand Reds when five months old, and Flemish when six months old. New Zealand bucks will apparently live together amicably until they are considerably more than five months old, while Belgian bucks may quarrel when three months old. There is a great difference, however, in individual animals, and growing stock should be watched for the first appearance of fighting.

Killing and Dressing

The most profitable time to kill rabbits is when they are from four to five months old. They are best for the table at this age. Flemish, however, as above stated, should be killed at four months. Belgian or New Zealand Red when five months old will weigh about four pounds, live weight, and a Flemish between five and six pounds. However, if growth has been forced when young, these weights may be exceeded. Rabbits four or five months old will lose about fifty per cent of their weight in dressing.

Rabbits may be killed by holding them by the loose skin of the back and then hitting forcibly the back of the head just behind the ears with a round stick the size of a broom handle. Skinning and dressing should be done at once if possible. If not convenient to do this, or if animals are to be shipped with the hide on, the entrails should be removed immediately in order that they may not in the least impart a taste to the meat. The prompt removal of the entrails also removes much of the blood, so that bleeding is hardly necessary, although if desired it may be accomplished by cutting the vein on the side of the neck immediately after killing.

In skinning, run the knife under the skin of the hind legs from the heels, the cut meeting that of the opposite side at the anal opening. Loosen skin from muscles of hind legs, cutting or tearing it loose at the heels, then cut through the bony and fleshy part of the tail. It is then possible by pulling to remove the skin over the head in much the same way that one pulls a shirt from a child by turning it wrong side out. The fore legs can be pulled out and severed at the feet, leaving the paws on the hide, or the skin may be cut at the fore feet. If the pelt is not to be saved, the neck may be severed when skinning reaches the head. Or the skin may be cut around the middle of the animal and pulled both ways, as is sometimes done with wild rabbits. Cut off feet, if not already off. Cut along midline of abdominal muscles from between hind legs (care being taken

not to cut into the entrails) through middle of chest to neck; break ribs on either side to better open thorax. Remove lungs and heart from the chest cavity, and diaphragm and all contents of the abdominal cavity. The liver, after the gall bladder has been removed, makes excellent eating. If the animal is to be shipped with the hide on, remove stomach and intestines only; do not open the chest cavity. The carcass should be allowed to cool before being packed. The abdominal muscles on each side contain so little meat that they may well be cut off and discarded.

Winter hides (December to March) have some value, varying with the condition of the fur, and the market demand may increase later. When intended for sale, the pelts, removed as above described, are drawn, fleshy side out, over a thin piece of board of a width to accommodate the skin and tapering gradually to a blunt point. The skin is slightly stretched and the free edge fastened to the board by tacks. Skin stretchers may also be made of heavy wire. Any flesh or fat adhering to the pelt should be scraped off and it should then be hung in a shady and not too warm place to dry. Any one who has prepared fresh hides of muskrats or other small animals for furriers will readily understand the process.

Cooking

Recipes for cooking rabbits may be found in many cook books and also in publications on rabbits. In general, the methods employed in cooking chicken are applicable, although frying is perhaps not so desirable with rabbit meat as with chicken. Avoid any form of cooking that will dry out the meat. A very good recipe (perhaps the best) is as follows:

Fricassee

Cut each hind leg into two pieces, the saddle and breast into three pieces and separate the shoulders and front legs from the body, making nine pieces in all. Brown the meat delicately in a little fat in the spider. Add from half a cup to a cup of boiling water. Cover closely and let simmer (not boil) for three quarters of an hour, or until tender. Add a little milk or cream, season to taste, and make gravy. There is little meat on the ribs. They may be used for soup stock.

Virginia Style

Cut the rabbit into pieces. Have a frying pan smoking hot, put pieces of bacon in it. When brown, add rabbit and diced bacon, pour over the sauce, cover and fry brown, then sprinkle with flour and keep turning until flour is browned. Add hot water, pepper, and salt, and let boil till gravy is smooth. Serve on a hot deep platter.

Broiled Saddle of Rabbit

Soak the saddle of the rabbit in warm salted water for an hour, drain and wipe dry. Broil it well over a clear fire and serve on buttered toast to which has been added a little currant jelly.

Baked Rabbit en Casserole

The rabbit may be boned or not as desired. Put alternate layers of rabbit and thin slices of bacon in the dish, season with thyme, sage, and thin slices of onion. Fill the dish with water, bake in a slow oven for an hour and a half. A deep covered baking pan may be used instead of the casserole.

Cutlets of Rabbit, Tomato Sauce

Roll the legs first in a mixture of salt, pepper, and powdered poultry seasoning, then in flour, dip in beaten egg and fresh bread crumbs. Place in pan containing melted butter, put in slow oven until tender and brown. Serve with tomato sauce.

Diseases

The diseases which affect rabbits are no more numerous than those of chickens and for practical purposes discussions here may be confined to snuffles, slobbers in young, coccidiosis, and ear canker.

Snuffles

Snuffles is a catarrhal infection and its first appearance is in the form of a slight cold, occasional sneezing and some running at the nose. If not checked, these symptoms are intensified and a thick whitish or yellowish discharge is emitted from the nostrils which the animal wipes off with its front paws, causing the latter and the parts about the nostrils and mouth to assume a wet and more or less disgusting appearance. The sneezing becomes more frequent and more pronounced in character, is sometimes accompanied by bronchial and lung trouble, and the general health of the animal is seriously affected. In severe cases the animal becomes emaciated and may die. Under proper conditions of exercise and food, and in clean dry hutches, a rabbit may recover or appear to recover and for a long time show no evidence of snuffles, though under certain conditions (wet, dirty hutches, poor food, or too much breeding) the disease will reappear in a more or less virulent form. It is infectious and is to be regarded as one of the most common and most serious diseases of rabbits.

Rabbits slightly afflicted with snuffles may, notwithstanding this handicap, breed and rear litters. Further, individuals show a great difference both in the matter of sensibility to the disease and in its effect on the general health. Sneezing, however, even if violent and prolonged is not necessarily indicative of snuffles.

The organism causing snuffles is probably always present in rabbits, only waiting a certain condition of the mucous membrane of the nasal passages to become dangerously active. Ammonia fumes from urine in neglected hutches are contributory to this condition. One of two things or both is highly conducive to snuffles, namely, draughts and unclean hutches. A hare allowed a large amount of liberty outside, in all kinds of weather, is apparently not susceptible to draughts, but not so with the hutch-bred rabbit.

Remedial measures.—Prevent drafts from entering the hutch and keep it clean. Separate, if feasible, the infected individuals from those that are well. Feed regularly good, nourishing food and avoid anything likely to lower the vitality of the rabbit, too frequent breeding, for example. Proprietary medicines and advertised remedies which we have tried give unsatisfactory results. An ounce of prevention in connection with this disease is certainly worth a pound of cure.

Slobbers

Slobbers, an evidence of indigestion, occurs only in youngsters or recently weaned rabbits and is evidenced by the wet, bedraggled appearance of the fur about the mouth, caused by discharges from the mouth, giving to the sides of the face a sunken appearance. The fore-paws may be wet owing to the rabbit frequently rubbing its mouth. The animal is weak and is constantly seeking the water dish or trying to eat. This condition may be a symptom of coccidiosis. Death generally occurs if the diseased animal is not taken in hand.

This affection may be caused by wrong feeding; an excess of undesirable food at a time when the alimentary canal is in a delicate condition; wet food; too much green food; or too much hay for an animal but recently nursing. Young rabbits naturally weak or not properly nursed (mother rearing too large a litter) are likely to contract this disease. (See remarks under Coccidiosis.)

Remedial measures.—Separate the sick from the well. Rub table salt on the sides of the mouth (introducing some into the mouth) and on forepaws. Allow no food or drink of any kind for a day or two, then feed only bread and milk or rolled oats for a while and put a little permanganate of potash (just enough to color the water a pale red) in the drinking water, renewing it daily. If they recover they may be returned to their fellows. A small litter is less likely to suffer than a large one.

Coccidiosis

Coccidiosis is caused by a microorganism which affects the intestines and liver and is perhaps more destructive than any other disease. According to our observations, it is fatal only to young rabbits. It has been reported to be sometimes fatal to adults. Neglected, dirty hutches or runs where food may be infected by contact with droppings and where the drinking water is allowed to become fouled with fecal matter, are the conditions which cause the spread of this disease. If in addition the run or hutch is crowded with young the situation is favorable for the prevalence of this highly infectious and often fatal malady. Many adult rabbits seemingly well and in good flesh still have evidences of coccidiosis as shown by white spots in the liver. This in no way injures their quality for the table. Evidently this is common with a large number of young rabbits but many do not succumb, and lead normal lives in spite of it. In serious cases, the affected animal mopes, eats but little, grows constantly weaker and thinner, suffers from diarrhoea, and finally dies.

Remedial measures.—Crowded and filthy hutches and runs should be avoided. Infected animals should be removed at once, and the hutches or runs frequently cleaned and sprayed with a disinfectant. As a general rule it may be said that young animals badly affected with snuffles or coccidiosis may better be killed unless they are of special value or are from highly pedigreed stock. Ordinarily it is hardly worth while to attempt to save a badly diseased young rabbit. It is possible that so-called "slobbers" is merely a symptom of this disease.

Ear Canker

Ear canker sometimes occurs in Flemish and New Zealand stock. We have never observed it in Belgians, though they also are said to be affected at times. The diseased ear is hot, may droop somewhat, and the sufferer may frequently shake its head as though in some pain. Examination of the inner surface of the ear shows a brownish or yellowish discharge which later forms a waxy incrustation. One or two applications of some good ear canker remedy (a few drops at a time) will cure it. Boracic acid dusted in the ear twice a day for a few days will help to relieve it. Rabbit raisers should be on the watch for this disease in order to check in its early stages.

Rabbit Pneumonia

Pneumonia may suddenly develop in a rabbit which has caught cold, and very shortly results in death. It is not common.

Boils

Boils may be lanced, the pus squeezed out, and the opening washed with a mild disinfectant not harmful to the animal.

Market for Rabbits—The Meat

The question as to whether or not rabbits can be marketed profitably is an important one to the would-be grower, since if he is moderately successful in his breedings, he will have more than enough meat to supply his family. The meat basis is the only legitimate foundation for the commercial raising of rabbits. On the Pacific coast, according to recent advices, dressed rabbit meat sells for from 28 to 35 and at times even 40 cents a pound, depending upon the supply and demand, while breeders are paid 25 cents a pound live weight at the rabbitry. Pacific coast residents have learned to appreciate this delicately flavored white meat and have long ago overcome any scruples because of the shape of the animals and because in the past they have been regarded as pets. Hare and rabbit meat is served regularly at restaurants and hotels there and it is constantly on sale in the city markets. Rabbit raising has not been practiced so long in the middle west as on the Pacific coast, and the people of this part of the country need to be shown at what

a low price a hare can be raised and how palatable it is when properly cooked. Appreciation of this meat can be brought about by private dinners, by giving dressed rabbits to people who may later become customers, by calling for Belgian hare at public dining-rooms, and by timely articles in the press. There is some demand in the Twin Cities at the present time, which would be greater if citizens were better informed regarding the meat.

The Fur

The question of fur can not at this date be discussed as fully as that of meat. Furriers are somewhat reticent regarding prices they are willing to pay for skins. The fur market in general, however, is on such a decidedly upward trend because of the high prices paid for standard furs, that the value of domesticated rabbit skins, and to a lesser extent, wild rabbit skins, is bound to advance. As a matter of fact, the price of skins of domesticated rabbits has recently advanced 80 per cent. and that of wild rabbits 40 per cent. According to a New York dealer, prime spring muskrat skins brought \$3.90 each at one of the fur auctions. Muskrat skins are used largely to make "Hudson Seal" coats, but prices are so high that only people of wealth can purchase these garments. For some years rabbit skins (most of them from Australia and New Zealand) have been clipped and dyed to make a product known as "electric seal," "sealine," or "near seal." This makes a handsome appearance, looks very much like genuine seal, and is made up largely into coats which sell for \$300 and more, and are fairly durable if properly taken care of. Domesticated rabbits, if raised in sufficient numbers, might compete with the wild product from Australia, though the latter is sold in enormous quantities and probably the cost of each skin to the furrier is small. However, dyed rabbit skins are extensively used in other ways and it is evidently this phase of the market that American breeders may most profitably seek. A reliable well-known dealer states that certain tanned hybrid skins of good quality should bring from 75 cents to \$1.50 each in the raw state. Some dealers are at present advertising for rabbit skins and should be consulted as to prices paid. Even at from 25 to 50 cents a skin, it is an inviting field when coupled with the possibilities of selling meat.

Rabbit raisers should bear in mind that, for the most part, natural color of rabbit fur has no importance in the eyes of a furrier. What he desires is a strong, pliable hide (found in does rather than in bucks), with fur of proper texture and density and of course not in the shedding stage. The fur of most domesticated rabbits (at least Belgian and Flemish hares and their cross-breeds) is in prime condition in late December, January, and February. Never expect a good price for a skin which is shedding. Directions for preparing rabbit skins for market have been given elsewhere in this bulletin.

There seems to be no reason, under present market conditions, if a desirable fur rabbit can be standardized, why the animals may not be raised in sufficient quantities here in America to warrant expectation of a profit.

Miscellaneous Suggestions

A rabbitry should be so built as to admit plenty of sunshine and an abundance of fresh air without a direct draft on the animals. Hutches should be airy and not crowded with animals. Windows should be screened to keep out flies.

The droppings of rabbits are normally round. Should they become soft and adhere, forming a mass, the animal is probably getting too much green or other loosening food and the diet should be corrected. Rabbits two months old or older, kept in capacious runs, may be fed green food almost exclusively during the summer without exhibiting such an abnormal condition. Rabbits, particularly adults, should not be overfed. Those that are always a little hungry are in better shape physically than

those that are overfed. Nursing does, however, should receive an abundance of milk-producing food. Avoid any sudden or radical change of food such as a transfer from hay and grain to a diet of green food. Such changes should be gradual. The same recommendation applies to sudden changes of temperature. It would be dangerous in a cold climate to transfer in winter, an animal from a heated room to an outside hutch or room, and the opposite change from cold to warm might also cause ill effects. Individuals, however, differ in susceptibility.

While rabbits respond to intelligent care, the raiser should not coddle his stock. The keeper of hares will frequently be surprised at the result attained by turning a sick rabbit out on grass where plenty of fresh air, sunshine, and exercise are available. Many an animal affected with snuffles or other ailment apparently recovers entirely under conditions approximating those of the wild rabbit.

A rabbit raiser should get a good manual on rabbit culture and should subscribe to a periodical containing new matter on the subject.

The most economical method of raising rabbits for table use in this climate is to have does litter in May or June, when green stuff is available. Rabbits may be fed entirely on garden waste during the summer and will be ready for market or table in September or October, having cost the owner little or nothing for food. Young from an old or enfeebled mother sometimes succumb to cold weather. Such does should not be used for breeding, and in general all young stock should be at least from three to four months old at the beginning of extreme cold weather.

Sudden noises or motions alarm rabbits. Since their well-being depends on an undisturbed condition of life, do not enter the rabbitry noisily or allow others to do so.

In view of the larger and finer animals available and discussed in this bulletin, the keeping of the smaller so-called "pet rabbits" is not desirable at the present time, though the future development of the fur industry may possibly change our attitude in this respect.

Prevent young rabbits from stepping into their water dishes, and as far as possible from defiling their food dishes. Always provide shelter from rain.

Hay should be put in small racks and kept off the floor.

Frequent and gentle handling of youngsters does away with their natural timidity.

A little tincture of iron in drinking water once a week is a good tonic.

These conditions should be constantly in mind; dry, clean, airy hutches or pens; good ventilation with no direct drafts; sunshine if possible.

Rabbits should not be allowed to pass from one run to another, for coccidiosis may be spread in this way. This may be avoided by making the runs high enough to prevent their jumping out, or, better still, the runs may be covered with wire mesh.

Young rabbits kept for six weeks or more with a mother infested with coccidia (although she herself may be in fair condition) are very likely to become infected and a part of the litter lost.

Full grown, or two-thirds grown rabbits in runs or hutches should have a floor space of at least eight square feet for each animal.

Every rabbit raiser should "keep books." Each rabbit should be numbered. There should be a record of every purchase, source of animal, sex, age, price, and ultimate fate of rabbit, whether sold alive and price, or killed for meat and price or whether death occurred as a result of sickness. All breedings and litters should be recorded; also the food purchased and the cost.

THE MUSKEGON FOX SHOW

A Huge Success from Every Point of View—Splendid Attendance, Many Sales Made—Ample Evidence that the Fox Industry in the United States is on a Firm Basis—The National Association to be Congratulated on the Success of the Show—Meeting of the Association—News Notes of the Show

By a Staff Representative

THE Second Annual Silver Black Fox Show of the National Silver Fox Breeders Association of America was opened by Mr. Lovelis, Ex-President of the Chamber of Commerce, at the State Armory, Muskegon, Michigan, on Wednesday, December 7th, and continued for three days, closing on the evening of Friday, December 9th. The Show was one of the largest ever held by any Association in this country and called together a number of men and women who are interested in raising of silver black foxes in captivity, together with a large number of people who are prospective fur farmers in general.

Foxes to the value of a half million dollars were exhibited by between thirty and forty of the best fox ranchers in the United States. All American foxes were shown, there being no exhibits from foreign countries.

The following are the Officers and Directors of the National Silver Fox Breeders Association of America, under whose auspices the Show was held, together with the members of the Show Committee, representing the Association, and the Show Committee, representing the Muskegon Chamber of Commerce, the latter outdoing themselves in order that this Show might be made a national success:

Officers

J. D. Ross, President, Muskegon; E. L. Ransford, First Vice President, Muskegon; Peter Jolman, Second Vice President, Muskegon; Fred C. Feierabend, Third Vice President, Gaylord, Mich.; Justus E. Smith, Secretary, Muskegon; H. A. Bauknecht, Treasurer, Muskegon.

Directors

J. S. Sterling, Lake Placid, N. Y., J. S. Chastek, Glencoe, Minn., A. L. Williams, Muskegon, Mich., Joseph Capuano, Muskegon, Mich., Geo. S. Tuttle, South Ryegate, Vt., C. T. Cryz, Eagle River, Wis., J. T. Gardner, Cass Lake, Minn., Abner P. Smith, Bolton Landing, N. Y., Arthur Schleicher, Lake City, Minn., F. C. Cheatham, Three Lakes, Wis., C. E. Beyreis, Wausau, Wis., Dr. G. W. Russell, Muskegon, Mich.

Show Committee

E. L. Ransford, Muskegon, A. L. Williams, Muskegon, J. S. Sterling, Lake Placid, N. Y., Arthur Schleicher, Lake City, Minn., Geo. S. Stanley, Muskegon, H. A. Bauknecht, Muskegon, E. M. Robinson, Spokane, Wash., Geo. S. Tuttle, South Ryegate, Vt., Earl Alberts, Muskegon.

Show Committee Representing Muskegon Chamber of Commerce

C. A. Broek, Ex-Prosecuting Attorney, L. T. Girdler, Secretary-Treasurer Standard Automotive Parts, George Hume, Vice President, Hume Grocer Co., Fred Riblet, President, Muskegon Trust Company, George W. Woodcock, Proprietor, Hotel Muskegon; Fred McCrea, Muskegon Chronicle, R. G. Dunn, Assistant Prosecuting Attorney.

The Judges were: George S. Tuttle, South Ryegate, Vt.; Robert A. Pfeiffer, Detroit, Michigan, and Dr. Ned Dearborn, Sacketts Harbor, N. Y. The Veterinary Inspector was Dr. Karl B. Hanson, U. S. Experimental Fur Farm, Keesville, N. Y.

Lack of space forbids our giving a detailed account of each exhibit, but it is safe to say that a finer lot of foxes were never shown in any country at any Show, and not only are the Managers of the Show to be congratulated upon the wonderful success and the splendid impetus given the fox business by this Show, but also the many breeders who took the trouble, the time and spent the money to exhibit their foxes from far distant centers are to be heartily congratulated and commended for the splendid co-operative spirit shown by them in boosting this Show. That the fox business is on a safe and sane foundation was amply proved at this Show.

Following is a list of the entries and the number of foxes entered by each:

J. S. Chastek, Glencoe, Minn., 10 foxes.
E. L. Ransford, Camp Roosevelt Ranch, Muskegon, 9 foxes.
Grand Traverse Silver Black Fox Co., Transverse City, Mich., 10 foxes.
Frank F. Tuplin, Alpine, Mich., 11 foxes.
Frank E. Burns, Grand Rapids, Mich., 1 fox.
A. L. Williams, Muskegon, Michigan, 18 foxes.
Mrs. Mary Simes, Sparta, Michigan, 1 fox.
F. M. Anderson, Muskegon, Michigan, 2 foxes.
Lake Superior Silver Black Fox Co., Houghton, Michigan, 4 foxes.
Allegan County Silver Black Fox Co., Allegan, Michigan, 8 foxes.
Pardo C. Light, Muskegon, Michigan, 16 foxes.
West Michigan Silver Black Fox Co., Muskegon, Mich., 1 fox.
Calumet Silver Black Fox Co., Sherwood, Wis., 4 foxes.
Garrett Van Allsburg, Muskegon, Mich., 2 foxes.
Mona Hill Silver Black Fox Co., Muskegon, Michigan, 4 foxes.
C. M. Daniels, Sabattis, N. Y., 12 foxes.
Wausau Silver Black Fox Co., Wausau, Wis., 16 foxes.
Wisconsin Valley Silver Black Fox Co., Wausau, Wis., 4 foxes.
Great Lakes Silver Black Fox Co., Muskegon, Michigan, 4 foxes.
Adirondack Mt. Silver Black Fox Co., Remsen, N. Y., 10 foxes.
Marathon Silver Black Fox Co., Marathon, Wis., 4 foxes.
George Wadger, Muskegon Heights, Mich., 2 foxes.
Volmari & Hughes, Muskegon Heights, Mich., 4 foxes.
Cass Lake Silver Black Fox Co., Cass Lake, Minn., 4 foxes.
Henry Van Donkelaar, Muskegon Heights, Mich., 2 foxes.
Thomas Wood, Muskegon, Michigan, 1 fox.
Dick Vandersteldt, Muskegon Heights, Mich., 1 fox.
William Ramm, Twin Lake, Michigan, 4 foxes.
J. D. Ross, Muskegon, Mich., 2 foxes.
C. E. Lyddick, Buchanan, Mich., 2 foxes.
East & Devries, Muskegon Heights, Mich., 2 foxes.
Marsh & Cannon, American S. B. Fox Co., Muskegon, Michigan, 6 foxes.
Ed Poulin, Muskegon, Mich., 2 foxes.
Sheffield Silver Black Fox Co., Northampton, Mass., 10

foxes.

F. C. Cheatham, Three Lakes, Wis., 3 foxes.

Following are the scorings of the various foxes exhibited, made by the Judges:

DIVISION I, CLASS 1

11	Sir Roger	89 1-2	E. L. Ransford
14	Teddy R.	87 2-3	E. L. Ransford
20	Dick T.	90	Grand Traverse Co.
36	Earl F.	95 1-3	Frank Tuplin
37	Rover	92 1-6	Frank Tuplin
38	Ink	87 5-6	Frank Tuplin
41	Frank B.	88 5-6	Frank Burns
42	Silas K.	91 1-3	A. L. Williams
59	William's Bonus	85 1-3	A. L. Williams
60	Blackbird	93 2-3	Mary Simes
64	Rube	91 1-6	Lake Superior Co.
66	Spud	93 1-2	Lake Superior Co.
73	King Charles	86	Claude Cole
78	Black Shadow	84 5-6	Allegan Co.
79	Prince De Coco	89 1-6	Allegan Co.
81	Elegans	85 1-3	Allegan Co.
121	Willing Lad Jim	88 2-3	Wausau Co.
123	Rib Hill Ranger	89 1-6	Wausau Co.
146	Adirondack King		
	Charles V	94	Adirondack Co.
154	Victory Chief	94 1-6	Volmari & Hughes
156	Victory Duke	88	Volmari & Hughes
160	Midnight	88 1-2	Cass Lake Co.
164	Wood's Tom	81	Thomas Wood
190	Sheffield Imperial		
	Scout	92 5-6	Sheffield Co.
233	Milville Thirty-one	9 1-4	Rest Island Co.
236	Rest Island Frank	94 1-3	Rest Island Co.
241	Rombough	92 1-6	Riverside Co.

DIVISION I, CLASS 2

13	General Pershing	89 5-6	E. L. Ransford
19	Damon	84 11-12	E. L. Ransford
24	Bonny Charlie	90 2-3	Grand Traverse Co.
25	Clark	91 5-6	Grand Traverse Co.
40	Bill	93 2-3	Frank Tuplin
43	William's Beauty	89 1-3	A. L. Williams
58	William's Black Hawk	88 1-6	A. L. Williams
62	F. M. A. No. 43	86	F. M. Anderson
65	Gus	90 5-12	Lake Superior Co.
69	White Lake Beauty	84 1-3	Claude Cole
75	Jimmy	86	Claude Cole
155	Victory Bob	94 11-12	Volmari & Hughes
158	Prince Edward	88 1-2	Cass Lake Co.
168	Appolo	80 5-6	Wm. Ramm
193	Sheffield McClure	90 5-12	Sheffield Co.
234	Rest Island Don	84 1-6	Rest Island Co.
242	Provider	94	Riverside Co.
174	Hector	83	East & DeVries

DIVISION I, CLASS 3

21	Jack T.	88	Grand Traverse Co.
23	McNally	91 1-2	Grand Traverse Co.
86	West Michigan Harry	89 2-3	West Michigan Co.
96	Sir Charles	95 1-2	G. VanAllsburg
98	General Grant	92 1-3	Mona Hill Co.
119	Prince of Wausau	92 1-6	Wausau Co.

125	Sir Jack of Weston	90 1-2	Wausau Co.
132	Prince Cunning	89 5-6	Wisconsin Valley Co.
145	Borestone Sir		
	Robert II	94 2-3	Adirondack Co.
147	Adirondack King		
	Charles II	95	Adirondack Co.
162	VanDonkelaar's		
	Henry	91 1-6	Henry VanDonkelaar
180	Spring Lake Silas	86 2-3	Marsh & Cannon
182	Spring Lake Uncle	95 1-3	Marsh & Cannon
188	Sheffield Scout	98	Sheffield Co.
232	Rest Island Ruler	94 11-12	Rest Island Co.
240	Jenkins	93 5-6	Riverside Co.

DIVISION I, CLASS 4

47	William's Prize I	96 1-6	A. L. Williams
71	Silver King	89 1-6	Claude Cole
87	Burnette	92 1-2	West Michigan Co.
144	Adirondack Sir Frank	90 1-3	Adirondack Co.
165	VanderSteldt's Dick	98	Dick VanderSteldt
187	Spring Lake Les	92 1-6	Poulin & Carl
201	Ephraim Urch	90 1-3	John A. Lea
239	Milville Thirty-Seven	94 1-6	Rest Island Co.

DIVISION I, CLASS 5

26	Clarkey	93 1-2	Grand Traverse Co.
39	Lady Alpine	93	Frank Tuplin
46	William's Silver		A. L. Williams
	Cup I	94	
70	Anna Queen	93 1-4	Claude Cole
90	Eugenia	94 1-2	West Michigan Co.
113	Borestone Lady		
	Selma VII	96	C. M. Daniels
120	Lady Catherine	95 1-3	Wausau Co.
159	Silk	89	Cass Lake Co.
161	Black Rose	92 5-12	Cass Lake Co.
167	Jupiter	92 1-6	Wm. Ramm
191	Sheffield Bianca	94 1-2	Sheffield Co.

DIVISION I, CLASS 6—Dark Adult Females

12	Madam Goldah	85	E. L. Ransford
15	Manetti	88 1-2	E. L. Ransford
72	Betsy	83 1-2	Claude Cole
80	Princess De Coco	92 2-3	Allegan County Co.
100	Mona I	88 1-6	Mona Hill Co., Tyler
139	Adirondack Lady		
	Selma III	94 1-3	Adirondack Co.
194	Sheffield Mary	95 2-3	Sheffield Co.
237	Milville Thirty-Four	88 2-3	Rest Island Co.

DIVISION I, CLASS 7—Medium Adult Females

16	Princess	89 1-3	E. L. Ransford
101	Lady Bell	87 1-3	Mona Hill Co., Tyler
122	Annabell Lea	93 1-6	Wausau S. B. Fox Co.
124	Isabell	90 1-2	Wausau S. B. Fox Co.
127	Wausau Maid	92 1-6	Wausau Co.
135	Silver Sue II	86	Great Lakes Co.
138	Adirondack Queen		
	Mabel	87 1-2	Adirondack Co.
163	VonDonkelaar's		
	Catherine	83 2-3	Henry VonDonkelaar
189	Sheffield Martha	92 2-3	Sheffield Co.
202	Luster Lass	87 5-6	Jno. A. Lea
235	Rest Island Gladys	88 5-6	Rest Island Co.

DIVISION I, CLASS 8—Light Adult Females

61	F. M. A. No. 12	91 1-6	F. M. Anderson
63	Eva	94 2-3	Lake Superior Co.
74	Sylvia	86	Claude Cole
91	West Michigan Jean	89 5-6	West Michigan Co.
118	Princess of Wausau	93 1-6	Wausau Co.
126	Lady Meg	85 2-3	Wausau Co.
134	Miss Delight	90 5-12	Great Lakes Co.
166	Flora	80 1-3	Wm. Ramm
175	Bardina	79 2-3	East & DeVries
181	Spring Lake Susie	88 2-3	Marsh & Cannon
186	Amy Robarge	89 1-6	Poulin & Carl
238	Rest Island Mona	89 2-3	Rest Island Co.

DIVISION I, CLASS 9—Black Male Pups

18	The Deacon	80 1-2	E. L. Ransford
27	Blackie	91	Grand Traverse Co.
32	Peace C	88 1-6	Frank F. Tuplin
35	John C.	82 1-3	Frank Tuplin
45	William's Silver Cup III	73 5-6	A. L. Williams
68	Sir Edwin	77 1-6	Pardo C. Light
84	Black Eagle	85 1-2	Allegan Co.
85	Iron Wing	86	Allegan Co.
88	West Michigan Kenneth	86 1-6	West Michigan Co.
109	Tarnedge King	91 2-3	C. M. Daniels
130	Black Hawk of Wausau	86 2-3	Wisconsin Valley Co.
136	Caesar	78 5-6	Great Lakes Co.
137	Thor	81 1-2	Great Lakes Co.
143	Adirondack Sir Niel	87	Adirondack Co.
157	Victory Bill	83 7-12	Volmari & Hughes
172	Midnight Flash	83 1-2	C. E. Lyddick
183	American Laddie	76 1-2	Marsh & Cannon
192	Sheffield Ned	84	Sheffield Co.
203	Mariner	88 2-3	John A. Lea
225	Rest Island Harding	79 1-3	Rest Island Co.

DIVISION I, CLASS 10—Black Male Pups

44	William's Prize III	86	A. L. Williams
82	King of Allegan	91 11-12	Allegan Co.
116	Frank	87 2-3	Wausau Co.
152	King George	88 1-2	George Waggoner
169	Paul	81 1-6	Wm. Ramm
204	Stanley Strong	87 1-3	John A. Lea
222	Rest Island Roosevelt	88 1-3	Rest Island Co.
229	Rest Island Taylor	88 7-12	Rest Island Co.

DIVISION I, CLASS 11—Medium Male Pups

76	White Lake Tommy	75	Claude Cole
83	Judge Rex	91 7-12	Allegan Co.
99	General Grant II	88 2-3	Mona Hill Co.
114	General Grant	89 5-6	Wausau Co.
128	Pride of Wausau	92 1-3	Wausau Co.
173	John A. Flash	89 1-3	C. E. Lyddick
196	Sheffield Eighth	90 1-6	Sheffield Co.
205	Flag Officer	82 1-6	John A. Lea
209	Moon's King	89 1-3	Martin Moon
223	Rest Island Washington	84 1-3	Rest Island Co.
227	Rest Island Taft	87 5-6	Rest Island Co.

DIVISION I, CLASS 12—Light Male Pups

142	Adirondack Sir Don	86	Adirondack Co.
184	Romeo	82 1-3	Marsh & Cannon
206	Kilburney	86 1-3	John A. Lea
211	Moon's Pride	89 1-2	Martin Moon
226	Rest Island Woodrow	91 5-6	Rest Island Co.
228	Rest Island Jefferson	90 7-12	Rest Island Co.

DIVISION I, CLASS 13—Black Female Pups

28	Miss Blackie	93 1-6	Grand Traverse Co.
29	Miss Blackette	88 5-6	Grand Traverse Co.
97	Van's Fortune	89 1-3	Gerrit VanAllsburg
110	Tarnedge Grace	84 1-2	C. M. Daniels

DIVISION I, CLASS 14—Dark Female Pups

17	Lady Sunday	80 2-3	E. L. Ransford
111	Tarnedge Whirl of the Town	77 5-6	C. M. Daniels
230	Rest Island Miretta	91 1-3	Rest Island Co.

DIVISION I, CLASS 15—Medium Female Pups

67	Lady Louise	84 1-3	Pardo C. Light
112	Tarnedge Tausli	87	C. M. Daniels
115	Blossom	89 1-2	Wausau Co.
131	Princess Ann	89 1-2	Wisconsin Valley Co.
141	Adirondack Robertta	90	Adirondack Co.
153	Laura W.	90 2-3	George Waggoner
194	Sheffield Winifred II	90 2-3	Sheffield Co.
197	Sheffield Martha II	86 1-2	Sheffield Co.
208	Moon's Queen	83 1-2	Martin Moon
210	Moon's Beauty	84 1-3	Martin Moon
224	Rest Island Lady Washington	91 1-3	Rest Island Co.

DIVISION I, CLASS 16—Light Female Pups

77	Silver Heels	82 2-3	Claude Cole
89	West Michigan Jessie	90 1-4	West Michigan Co.
117	Trixie	91 1-6	Wausau Co.
129	Lady Catherine II	90 1-3	Wausau Co.
133	Maybelle of Wausau	91 1-6	Wisconsin Valley Co.
140	Adirondack Lady Sylvia	85 1-6	Adirondack Co.
185	Juliet	87 1-2	Marsh & Cannon
220	Rest Island Sunshine	88 1-2	Rest Island Co.
221	Rest Island Daisy	91 1-4	Rest Island Co.
231	Rest Island Natalie II	87 1-3	Rest Island Co.

DIVISION II, CLASS 1

1	Hercules King I	90 2-3	J. S. Chastek
3	Hercules Pride	89 1-6	J. S. Chastek
102	Tarnedge Pierrot II	80 2-3	C. M. Daniels

DIVISION II, CLASS 2

2	Hercules Prince	91 1-3	J. S. Chastek
53	William's Diamond	85 1-3	A. L. Williams
104	Tarnedge Pierrot	86 1-6	C. M. Daniels
212	Sterling's Alaska Pribilof	91 1-3	J. S. Sterling
213	Sterling's Alaska James II	81 2-3	J. S. Sterling
216	Sterling's Alaska Gold Mine	88 2-3	J. S. Sterling

DIVISION II, CLASS 3

92	Chief Calumet	91 1-2	Calumet Fox Co.
214	Sterling's Alaska Siwash	91	J. S. Sterling

DIVISION II, CLASS 4

30	Sandy	91 1-6	Frank Tuplin
48	Bob Bell	83 7-12	A. L. Williams
50	William's Champion	89 1-6	A. L. Williams
54	Paddy Bell	85 2-3	A. L. Williams
94	Highcliff George	85 1-6	Calumet Fox Co.
150	Wisconsin Leader	84 1-3	Marathon Fox Co.

DIVISION II, CLASS 6

107	Tarnedge Pierrote II	87 1-2	C. M. Daniels
170	Alaska Beauty	89 1-3	J. D. Ross
217	Sterling's Alaska Mentaste	92 1-3	J. S. Sterling

DIVISION II, CLASS 7

52	Lady Bell	93 5-6	A. L. Williams
215	Sterling's Alaska Melozie	86 5-6	J. S. Sterling

DIVISION II, CLASS 8

10	Hercules Lady Anna	89	J. S. Chastek
31	Lady Alice	86 5-6	Frank Tuplin
49	Mary Queen	89 7-12	A. L. Williams
51	Bonus Bell	85 5-6	A. L. Williams
55	Queen Bell	91 1-3	A. L. Williams
93	Minnehaha	83	Calumet Fox Co.
95	Snowflake	84 1-2	Calumet Fox Co.
151	Wisconsin Daisy	88 2-3	Marathon Fox Co.

DIVISION II, CLASS 9

6	Hercules Wonder	87	J. S. Chastek
8	Hercules Tyge	87 2-3	J. S. Chastek
105	Tarnedge Tanana	81 5-6	C. M. Daniels
218	Sterling's Alaska Black Jack	81 2-3	J. S. Sterling

DIVISION II, CLASS 10

7	Hercules Partner	88 1-3	J. S. Chastek
33	Scott	87 1-3	Frank Tuplin
106	Tarnedge Taral	86	C. M. Daniels
219	Sterling's Alaska Warrior	86 1-6	J. S. Sterling
171	Alaska Prince	79 2-3	J. D. Ross

DIVISION II, CLASS 11

9	Hercules Rambler	89 1-6	J. S. Chastek
34	Traverse Boy	91 1-3	Frank Tuplin

DIVISION II, CLASS 12

57	William's Yukon	77 5-6	A. L. Williams
148	Marathon Peerless	83 2-3	Marathon Fox Co.

DIVISION II, CLASS 13

4	Hercules Queen I	91 1-6	J. S. Chastek
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DIVISION II, CLASS 15

22	Annie	86 2-3	Grand Traverse Co.
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DIVISION II, CLASS 16

5	Hercules Beauty	88	J. S. Chastek
56	William's Pride	78 5-6	A. L. Williams
149	Marathon Beauty	83	Marathon Fox Co.

The presentation of the prizes and ribbons was made by Judge J. Ford Stratton of Allegan, Michigan. Quite a number of sales were made during the Show by the exhibitors and many prospective customers were interviewed by the ranchers present.

Dr. Karl B. Hanson gave a very exhaustive demonstration as well as a splendid speech, on "How to Take Care of a Sick Fox." This was enjoyed by those present and will be a source of information which will be invaluable to the fox ranchers.

A full list of the winners of prizes at the Fox Show will be announced in our January issue.

A FEW OF OUR VISITORS

Among those who visited the booth of the "AMERICAN FOX AND FUR FARMER" at the Muskegon Show, and who are intensely interested in the success of the publication, were the following: Herman Nehls, Sherwood, Wisconsin; John S. Sawtelle, Portland, Me., with Fidelity Silver Black Fox Co.; Mr. and Mrs. H. H. Mills, Grand Rapids, Michigan; J. G. Sandwell and wife, Allegan, Michigan; R. D. Aitken, Montague, Michigan; Dr. E. S. Carroll, Buffalo, N. Y.; Dr. H. S. Townsend, Buffalo, New York, of Great Lakes Silver Fox and Fur Corporation; D. R. Murray, of Murray Fox Farm, Traverse City, Michigan; L. E. Boyle, Suttons Bay, Michigan; Lieut. Ashbrook, representing U. S. Government, Washington, D. C.; H. Smith and wife, Michigan City, Indiana; Ed. Johnson and wife, Michigan City, Indiana; Mr. and Mrs. John C. Stein and son, Allegan, Michigan; Dr. S. C. Moore of The Wexford Silver Black Fox Co., Cadillac, Michigan; Fred L. Staats of Cadillac, Michigan; Emil Swanson of Cadillac, Michigan; Judge J. Ford Stratton, Allegan, Michigan; George Barnum of The Box-Alder Silver Black Fox Co., Allegan, Michigan; Matt Pinnell, Superior, Wisconsin; Mr. and Mrs. Watts, Montague, Michigan; Mrs. Carrie Marshall, Grand Rapids, Michigan; A. H. Kraus, Oshkosh, Wisconsin; Mrs. Krubaek, Lakewood, Michigan; Miss Agnes Ramm, Lakewood, Michigan; Mr. A. Smith, of The Holland Silver Black Fox Co., Holland, Michigan; Lee DeFeyer, of The Holland Silver Black Fox Co., Holland, Michigan; H. F. Anderson, Jamestown, Pa.; Mrs. Louise P. Gray, Lansing, Michigan; E. G. Olander, Cadillac, Mich.; Fred Bauman, Grand Rapids, Michigan; J. S. Chastek, Glencoe, Minn.; Dr. W. L. Chandler of the Michigan Agricultural College, East Lansing, Michigan; Mr. and Mrs. J. B. Dunsmore, Muskegon, Michigan; C. F. Chapin, Coeur d'Alon, Idaho; Mr. Claude Green, Sand Point, Idaho; Mr. Samuel Odell, Lansing, Michigan; Mr. H. LaDue, St. Paul, Minnesota; R. T. Roberts, Sturgis, Michigan; Mr. J. T. Gardner, Cass Lake, Wisconsin; Mr. M. R. Morgan, Muskegon, Michigan; William Glave, Muskegon, Michigan; Mr. Perry A. Cole, Remsen, N. Y.; and Walter Mellor, Michigan City, Michigan.

NEWS NOTES OF THE CONVENTION

Items of Interest Picked Up Here and There by a Representative of the "American Fox and Fur Farmer"

The Sheffield Silver Black Fox Company distributed at the Show letters setting forth the prize winners in their ranch and inviting everyone attending the Show to see their exhibit. It was well worth seeing.

Harry J. LaDue, Assistant Fish and Game Commissioner, was one of the very popular visitors at the Show.

J. L. York, of Rangeley, Maine, was one of those who manifested an intense interest in all that went on during the entire Show. He has a ranch of twenty pairs.

One of the men who was most frequently consulted on

matters pertaining to food, sanitation, etc., of foxes was Dr. Carl B. Hanson of Keeseville, N. Y., who is with the United States Experimental Station located there.

Lieutenant Frank G. Ashbrook was the center of many interesting groups who he entertained by explaining to them what he had found in his visits around the country relative to the fox industry.

Charles Dunning, formerly keeper at the ranch of The Adirondack Mountain Silver Black Fox Company at Remsen, N. Y., now with Arthur Schleicher of Lake City, Minn., was one of the interested exhibitors at the Convention.

"The American Fox and Fur Farmer" of Utica, N. Y., was represented by Mr. C. L. Robins, who was busy getting news items and interviewing those present as to their attitude on an American publication for the American breeder. He certainly was received with cordiality on all sides.

Messrs. Dearborn, Tuttle and Pfeiffer, the judges, were spoken of on all sides as being absolutely fair and fearless in their decisions.

Dr. Carl B. Hanson inspected most of the foxes before the Show and found them in an apparently healthy condition.

A good spirit prevailed at the Convention. Some of those present thought a Show should be held in various cities of the United States, alternating. This is a subject worthy of consideration.

The establishing of one Herd Book was a matter that was favorably commented upon by many of those attending the Show—one Herd Book for the entire United States.

Frank F. Tuplin was hailed by many at the Convention as one of the pioneers in the industry. Mr. Tuplin wears his honors modestly.

The Chamber of Commerce of Muskegon certainly did themselves proud in the way they entertained and looked after the interests of visitors to the Show and Convention.

The number of Eastern representatives of ranches visiting the Show was favorably commented on by those present.

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Read "FUR FARMING WITH SHEEP" pages 22-24, October number this publication, also twelve pages illustrated article in National Geographic Magazine July 1919, by Professor Robert K. Nabours, of the Kansas State Agricultural College. Address, **L. M. CRAWFORD, Topeka, Kansas.**

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Highest average score in show, 94 4-5 points.

Below are the names and winnings as given in December issue of "Black Fox Magazine. These are the kind of foxes we sell.

<i>Borestone Lady Selma VII</i>	. . .	96 points
<i>Arirondack King Charles II</i>	. . .	95 points
<i>Borestone Sir Robert II</i>	. . .	94 2-3 points
<i>Adirondack Lady Selma III</i>	. . .	94 1-3 points
<i>Adirondack King Charles V</i>	. . .	94 points

Highest average score of any breeder, 94 4-5. Highest scoring female in show, 96 points. Highest scoring black fox in show, 96 points. Black Fox Magazine Cup; 1 first ribbon; 1 second ribbon; 2 fourth positions.

What would have happened if we had sent to Muskegon the Borestone pack, led by our famous champions, Borestone Loami, International Champion of North America, 1920; Borestone Reid, National Champion of Canada, 1920; Borestone Rigel, highest scoring American black fox, 1920; Borestone Superb, tied for highest scoring pup, 1920; Borestone Sirius, only grand show champion, 1919. Three Borestone foxes have scored 96 points or more at show.

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REPORT OF SALES DURING 1921 MADE BY

The Adirondack Mountain Silver Black Fox Company, Inc.

Ranch at REMSEN, N. Y.

NEWPORT, N. Y.

Adirondack Lady Midnight had seven puppies, sold alive for \$4,250.00
 Adirondack Queen Josephine had five puppies, sold alive for 2,800.00
 Adirondack Lady Mercury II had four puppies, sold alive for 2,500.00
 Adirondack Lady Selma III had four puppies, sold alive for 2,400.00
 Adirondack Queen Dorothy had three puppies, sold alive for 1,800.00
 Adirondack Queen Dorothy had two puppies pelted and sent to London
 Adirondack Lady Callie had three puppies, sold alive for 1,850.00
 Adirondack Lady Mabelle had 1 puppy, male kept by Company
 Adirondack Lady Mabelle had three puppies, sold alive for 1,800.00
 Adirondack Lady Mercury IV had two puppies, sold alive for 1,200.00
 Adirondack Lady Mercury IV had one puppy, male held by Company
 Adirondack Lady Mercury had two puppies, sold alive for 1,200.00
 Adirondack Queen Martha had two puppies, sold alive for 1,150.00
 Adirondack Queen Martha had one puppy, male held by Company
 Adirondack Lady Mercury III had one puppy, sold alive for 600.00
 Adirondack Lady Mercury III had three puppies, held by Company
 Adirondack Lady Selma IV had four puppies, pelted and sent to London
 Adirondack Lady Izora had two puppies, held by Company
 Adirondack Lady Florence had four puppies, pelted and sent to London
 Adirondack Lady Burnice had three puppies pelted and sent to London
 Adirondack Lady Leona had three puppies, pelted and sent to London

It is the ambition of the men managing the affairs of the Adirondack to perfect their breeding stock. Their present program is to sell only the very best for breeders to ranchers whom they know will develop their foxes. This would seem a sound policy and it is evident that the men interested are planning to keep the Adirondack to the forefront and assure it business for the years to come.

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American Fox and Fur Farmer

Vol. I

FEBRUARY, 1922

No. 8

PUBLISHED MONTHLY, 406 ARCADE BUILDING, UTICA, N. Y.—PHONE 1778-W
 An American Publication Devoted Exclusively to the Silver Black Fox Industry and Fur Farming

C. L. ROBINS, *Manager*

PUBLISHED BY "AMERICAN FOX AND FUR FARMER"

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AMERICAN ASSOCIATION

The meeting of the Board of Governors of the American Fox Breeders Association, reported in another column, was a very successful affair. The paper read by Dr. Hall was favorably commented upon by all present. Too many meetings of this kind cannot be held. They all increase the interest in the business, and a full and frank discussion of the problems of the industry will aid in their proper solution.

ECHOES OF THE SHOW

We are advised that a large number of sales have been made of live foxes as a direct result of the Muskegon Fox Show. There is no doubt but that the exhibition of live animals is an incentive for the purchase of foundation stock. The popularity of exhibiting foxes is bound to increase. Due care must be exercised so that only perfectly healthy foxes are admitted.

A SPLENDID OUTLOOK

Reports received at this office from the principal ranches of the United States indicate a most successful breeding season. Foxes seem to be in unusually good condition and a big production is confidently expected. Proper feeding has had much to do with increased production and the rancher who pays attention to feeding and sanitation will be amply repaid for time and trouble in an increased number of pups.

STATE ASSOCIATIONS

The idea of having a State Association for fox ranchers in every State in the Union, where foxes are raised in captivity, is meeting with much approval. If this could be accomplished and then one large Central Parent Association could be formed, with which all State Associations could be affiliated, what a wonderful organization it could be. Its worth talking about. Let us have your opinions for publication.

SOME SPLENDID ARTICLES

We are pleased to call the attention of our readers to several articles which appear in this issue. Read the articles prepared by Mr. Jeffreys, Prof. Adams, Mr. Daniels, and others. They merit your careful attention. This publication plans to print matter that is of real value, from the pen of someone who knows what they are writing about.

FUR-BEARERS MONEY MAKERS

The raising of fur-bearing animals in captivity has passed the experimental stage and is now considered a legitimate and money making industry. Already many individuals and corporations have demonstrated that the raising of beaver, mink, otter, muskrat and skunk in captivity can be successfully and profitably accomplished, and more and more people are becoming interested.

SUBSCRIBE NOW

This line is intended for the American fox rancher and fur farmer who has not yet subscribed to this publication. We want your co-operation. We are gratified beyond measure at the splendid spirit of encouragement shown us thus far. If you have subscribed, urge your friends who are interested to send in their subscription. Then too, don't hesitate to contribute to our columns. Tell the other fellow what you are doing. You may help solve his problems and he may help solve yours.

OUR BIG NEED IS FOREST CARE AND REFORESTATION

Forest fires every year in the United States destroy enough lumber to build a five-room house every 100 feet all the way from New York to Chicago. These buildings would house the population of a city the size of Cincinnati or New Orleans. During the past five years more than 160,000 forest fires have occurred in the United States, 80 per cent. of which were preventable. These conflagrations burned an area of over 56,488,000 acres, greater than that of either Ohio or Pennsylvania.

In discussing these facts Charles Lathrop Pack, President of the American Forestry Association, says:

"Threatening the future prosperity of the country are two big items, our year losses from forest fires and our hundreds of millions of acres of forest lands which are not growing forests. Just what this means to big industries in sections like New York and New England is shown in the three-million-dollar-a-year freight bill which New England pays on imported lumber because of the idle acres close to her factory doors. The lumber cut in the state of New York has dropped almost 60 per cent. since 1910. Her consumers of lumber are paying \$66,000,000 a year for imported lumber and \$11,000,000 a year for state grown lumber."

The Round Worms, *Belascaris Vulpis*, in Fox Pups and Their Removal

By GEORGE A. JEFFREYS

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THE name Round Worms when correctly used, is applied to that class of worms called Nematodes, which are unsegmented and cylindric in form. This class includes many species, the hookworm, seat and whip worms and the ascaris round worms all belong to this class. The ascaris worms are known by many persons as just ordinary round worms. The species of ascaris worms that infest the fox and about which this article is written is termed "*Belascaris Vulpis*."

Belascaris worms are found to be distributed among more ranches than any other worm. Their most suitable environment and their starting point seems to be in the intestines of a young fox pup. As many as 50 to 300 worms are often harbored by each fox pup in an infected litter. Worms in such numbers sap the strength and vitality of young foxes and cause many deaths. It is, therefore, no little cause of concern that their presence in pups be detected and proper steps taken for their removal.

Fortunately these worms are susceptible to treatment and easy to remove even in very young pups. Unlike other worms which are attached in different ways to the intestinal wall, the *Belascaris* worm lies loosely curled up in the intestines. Although a ranch may be heavily infected with *Belascaris* worms, if proper methods are taken all young pups may be fairly well cleaned out of worms without any damage being done.

Life History of *Belascaris Vulpis*

In order to combat this parasite successfully every rancher ought to know something of its life history and the characteristics peculiar to this species. The history of the ascaris worms is said to have been worked out by a number of investigators and the theory in the main has been accepted as true. There are a number of points, however, which are in doubt, and the evidence obtained by the author's recent experiments, is not compatible with the present beliefs.

The infection of *Ascaris* worms is said to be direct, that is the eggs of the worms are swallowed by the fox pup. Upon reaching the stomach and intestines the eggs hatch. The free embryos or young worms remain in the intestines, eat and grow on the food that rightly belongs to the fox. The worms reproduce sexually, the female laying great numbers of eggs when only half grown which is from five to seven centimeters. These eggs pass out with the feces and contaminate the surrounding ground.

The development of the egg into a living embryo usually takes place outside, in the ground, at a suitable moisture and temperature point. The large single cell of the egg or yolk-like nucleus keeps dividing into smaller and smaller cells until it forms into a living embryo. The living embryo does not come out of the egg but waits until it reaches the stomach of the fox. Eggs swallowed in a one celled stage are not likely to hatch in the fox but probably pass through the alimentary tract and come out again with the feces in a more developed state. It is probable that eggs are developed into embryos in this manner in the winter when outside temperature would inhibit the development of eggs.

The shell of the ascaris eggs are highly impervious to chemical reagents especially acids. Ordinary disinfectants

have no effect on worm eggs but act more as a stimulant to their development. The author has developed *Belascaris* eggs in solutions of five per cent Kreso, five per cent, carbolic acid and copper sulphate solutions. If a solution could be discovered that would destroy the life of the worm egg or inhibit its growth, the problem of eradication of round worms from a ranch would be solved.

Development of Worms in Puppies

New born pups offer an ideal environment for the development of worm embryos. At this age when only the mothers milk is taken into the stomach, every worm embryo that hatches in the stomach is offered every inducement to remain in the intestines.

The present general accepted theory of the manner in which egg embryos gain access into the stomach of the fox pup is by means of the mothers teats which have been contaminated by the mother from lying down on polluted ground. The pups in sucking the milk, get some of these eggs and probably also swallow some in noising around in the den. The following evidence here presented does not bear out this theory but seems to indicate that there is another way, still undiscovered that pups become infected with worms.

In treating fox pups for worms the following points have been observed. First, the average size of worms in each pup is the same for the whole litter. This indicates that the infection of every pup in the whole litter, took place at the same time.

Second, the worms in any one pup are nearly all the same length according to their sex and vary only two centimeters from the average.

Third, the average length of the worm is the same in puppies of the same age, the increase in size being constant and in proportion to the age of the pup.

The two following measurements illustrate the actual variation in length of worms in each pup.

Age of Pup	Number of Worms	Number Worms in Centimeters Long												
		2	3	4	5	6	7	8	9	10	11	12	13	
22 days	222													
41 days	62													

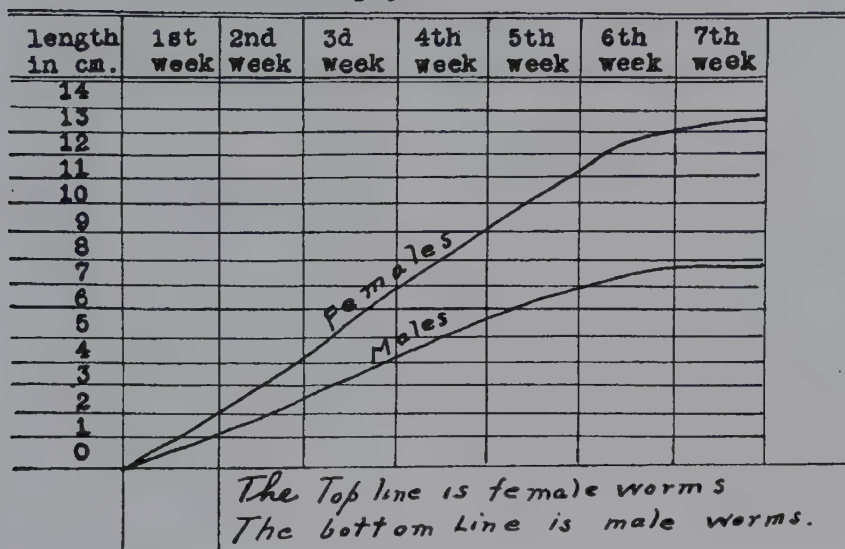
The sizes of worms fall into two groups according to their sex. The male worms when mature are considerably smaller than the females. The male worms in No. 1 pup average from two to four centimeters while the females measure from five to seven centimeters, a variation of only two centimeters.

In No. 2 pup, the difference in size between sexes has increased considerably, the males measuring from six to eight centimeters and the females from eleven to thirteen centimeters. Not a single male was found below six centimeters or a female below eleven centimeters.

The following chart computed from over thirty pups illustrate the curve growth of worms, in pups of various ages:

If worm egg embryos are so plentiful in the general surroundings that a pup can become infected directly with 200 worms or more in a short space of time, then this infection would extend through several successive weeks

Chart showing growth curves of worms in pups



which in turn would plainly be seen by the different sizes of worms developed. Each pup would have worms of all sizes, large and small according to the date of their entrance and hatching in the pup. But such is not the case. It will be noticed that although the size of the worms increase with the age of the pup, no small or baby worms are ever found below a certain limit. All worms appear to be of the same age in each fox, showing that all have entered into the pup at the same time, with no further infection taking place after this. Again all fox pups appear to become infected at the same period of their lives.

An examination of the chart will show that the infection in every case commences about birth or shortly after. The exact period when this infection takes place is still undetermined. The worms commence to lay eggs when pups are eighteen to nineteen days old.

The tremendous laying power of a female is well known. Adult foxes are most always only lightly infected with a few mature *Belascaris* worms, probably the remnants of the vast hordes which invaded them in their puppyhood days. The feces of such fox may contain from a few to several hundred worm eggs. Most of the feces is deposited outside the den proper; a large portion of this is picked up by the keeper; a small per cent. is tracked into the nest box and a still smaller per cent. perhaps adheres to the mother's teats. It is highly improbable that a mother fox with a litter of four can in a short space of a day or two gather up 1,000 living worm egg embryos on her mammae and feed them to her young. If there be some method by which the eggs are seived, centrifuged and concentrated, then placed in the young, it must be by some other means than the mother's mammae.

Determining the Extent of *Belascaris* Infection in Pups

Although the exact manner of *belascaris* infection may not be thoroughly known, the important point at present to the fox rancher is, how to determine the extent of *belascaris* infection in pups and how to remove these worms safely. There are many methods in vogue, each ranch having its own special way. The rancher should strive to adopt that method which will give the best results.

Determining the extent of the infection is an important preliminary step. To know what litter of pups have worms and what pups have not is productive of better results than to treat all pups in a ranch blindly so causing more labor, danger and disturbance than necessary.

For this preliminary step a small laboratory equipped with a microscope and a few accessories is necessary. It is in the power of every rancher or caretaker to learn the technique of examining feces for worm eggs. Indeed, a laboratory is an essential part to a large ranch. The cost of such necessary laboratory appliances need not be over \$200. The microscope required for this work should have a circular double nosepiece equipped with two objectives of 16 mm. and 4 mm. which will give a magnification up to 430 times. The following is a list of necessary equipment needed together with its cost:

1 Microscope with 16 mm. and 4 mm. objectives.....	\$ 87.50
1 Hand centrifuge, two speed	16.50
2 Test tube racks	1.00
5 doz. large and small test tubes	3.00
1 box glass slides	1.85
Cover glasses	1.00
3 Glass pipettes .....	.50
1 Alcohol lamp .....	.25
1 Tweezers .....	.35
1 Brass sieve No. 60	2.10
1 Brass sieve No. 100	2.30
4 Glass crystallizing dishes	2.00
2 doz. small wide mouth bottles	1.50
1 doz. large wide mouth bottles	1.00
6 Test tube brushes .....	.45
1 large glass jar for contaminated slides .....	.50
1 Graduated cylinder 50 cc. ....	.45
3 Glass beakers 100 cc., 150 cc., and 250 cc. ....	.60
Glass rods and glass tubing	1.00
1 Dissecting hook shape needle .....	.50

The few chemicals needed are as follows:

Alcohol, ether (denatured)
Alcohol, wood
Acid, salicylic
Acid, sulphuric
Acid, carbolic
Acid, hydrochloric
Formaldehyde
Glycerine

Potassium bichromate
Sal soda

The material outlined above is for the diagnosis of worm eggs. If wider work is to be done in the field of bacteriology the list would of course have to be greatly extended.

The room selected for a laboratory should be possessed of certain essential features. It should be well lighted on one side. A large sink with hot and cold running water is important. A long table or bench should be on one side of the room and a high bench on the other, while plenty of shelves can be arranged above each bench.

The greatest precaution should be exercised in handling feces and any contaminated material. The following few rules are followed carefully by all good laboratory technicians. Never allow your hands to touch the fecal matter on the slide or anywhere else, handle all such material with tweezers, needle, glass rod and pipettes. Never lay these instruments on the table without sterilizing them first. Pass your needle and tweezers thru the flame of the alcohol lamp each time after using. Place all contaminated slides and glassware in the glass jar of strong disinfectant solution made as follows: Potassium bichromate 50 gm.; sulphuric acid, con, 60 cc.; water, 500 cc. Slides are also easily cleaned by immediately washing them in hot running water and boiling them in a solution of sal soda, then rinsing them in clean water.



Fig. 2—*a, b, c*, are *Belascaris* eggs, *h* is a hookworm egg, note the clear zone around the four cells and the thinness of the shell. *v* is vegetable cells and *f* is vegetable fibre. (Magnification 96x.)

Method of Finding Eggs

The presence of *Belascaris* worm eggs in the feces indicates that the animal has worms. Old worms sometimes do not lay eggs. This is especially true of the hookworm. In this case the animal would be infected with worms and not show it in the feces. This, however, is an exception and is applicable only to adult foxes. The extent of the infection of worms in fox pups can always be measured by the quantity of worm eggs seen in its feces.

When the pups are three weeks old one or two small pieces of manure is collected from the outer den or chute of each pen and placed into small wide mouth bottles. Mark and number each specimen.

From feces of pups a direct examination is generally

sufficient. Enough water is poured into the bottle containing the feces to more than cover it. The feces are dissolved and broken up thoroughly with a glass rod. Allow the material to settle a few minutes then with a glass pipette draw off a few drops of the sediment a short distance from the bottom. Place these few drops on a glass slide and place a cover glass over it, then examine under a microscope with low power.

When a case is doubtful and eggs are few, the following method separates out the eggs more thoroughly and concentrates them so they can be more easily found. Break up and dissolve the feces in water as before. Place a No. 60 brass sieve into a crystalizing dish and pour out the dissolved feces into the sieve. The bottle is rinsed out with water several times, each time pouring the water into the sieve. Water should be poured into the sieve until it rises slightly above the bottom of the mesh. By gently lifting the sieve back and forth several times, most of the finer particles and worm eggs will pass thru the mesh, while the coarser particles will remain in the sieve. When the operation is completed the sieve is lifted out and placed in another pan of water where the coarse material is examined with the eye for worms or segments of worms.

A No. 100 sieve is now placed into another crystalizing dish and the first filtrate is stirred and poured into this finer sieve. The operation of washing and lifting is now repeated until only the very small particles and eggs have passed through. The second sieve is now lifted out, washed and disinfected.

After the last filtrate has stood for several minutes, some of the water may now be gently poured off without disturbing the eggs which have settled on the bottom. The remainder is then poured into tubes and centrifuged for a few seconds. A few drops of the sediment is drawn up by a glass pipette and placed on a slide for microscopical examination.

The low power objective, 16 mm. is always first used in examination of feces for parasitic ova. When an egg has been spotted and placed in the center of the field, the higher power may be turned on and a more detailed examination made. The instruction book sent with every instrument will here help the beginner. If several examinations are made in a direct method before any eggs are found, the infection can be considered slight. On the other hand if several eggs are found to every field, the infection in all probability is very heavy.

All worm eggs being organized matter are symmetrical in form, having a more or less perfect contour. They can, therefore, be easily distinguished from unorganized matter as debris and undigested particles of food. All eggs and living cells unlike air bubbles and fat globules have a yolk like nucleus in the center from which the new being grows. The beginner should be careful and not confuse air bubbles and fat globules with worm eggs.

Belascaris eggs have their own peculiar characteristics which enable any one to easily identify them. One outstanding feature is, that if pups are infected with *Belascaris* worms, *Belascaris* eggs will be more plentiful than eggs of any other species. As to shape, *Belascaris* eggs are spheric in form and slightly larger than hookworm being about 68 to 70 microns in length.*

The shell of the *Belascaris* egg is considerably thicker than that of the hookworm egg. The nucleus is freshly pass-

* To those who are unfamiliar with microscopical measurements, a micron is considered as a unit of measurement and is 1/1000 of a millimeter in length. A good idea of this measure is obtained by taking the diameter of a human red blood corpuscle which is 7 to 8 microns. A drop of blood is placed on the slide and smeared.

ed feces is generally always in a one celled stage while that of the hookworm is found in a four or more celled stage. Fig. 2 shows three Belascaris eggs and one hookworm egg. The nucleus of one of the Belascaris eggs has divided into two cells. The rest are in a single celled stage. Note that the hookworm egg has a much thinner shell than the Belascaris eggs, and that its neulus is in a four celled stage.

If plenty of Belascaris eggs are found a study of their development can be made easily, from day to day, by placing them in any of the following solutions, two per cent. formalin, one per cent. kreso or ten per cent potassium bichromate. The solutions containing the eggs should be kept at body temperature and aerated by keeping them in a shallow dish and stirring them from day to day. In two weeks many of the eggs will contain active motile embryos.

When each pen of pups reaches the age of 21 to 25 days or more, their feces should be examined and a record made of the results. If no worm eggs are found it may be safely assumed that no worms are present and that no further treatment is necessary. If worm eggs are found then pups should be treated before the pups are four weeks old.

Method of Treating Pups

The rancher having decided that pups are to be treated for Belascaris worms the manner and method of treatment is of utmost importance to him. The method which should be followed is one that will not only enable the keeper to note the effects of the treatment in every pup, but will enable him to compare results between different remedies. It often happens that a pup will not pass any worms from the first treatment, although he may be heavily infected, this is probably due to the cause that the absorption of the medicine covers more worms and also that a larger mass of parasites is not so easily evicted. By treating a pup and placing him back immediately into the pen, the keeper would not know results and the pup would be as bad as he was before.

It is necessary, therefore, to remove all pups from the pen, treat and place each pup in a separate place so results can be noted.

It would at first seem that removing pups is rather a hazardous undertaking, but on the other hand it is not as dangerous, if properly done, than to invade the pen and treat each pup in the den itself. It is here that a hospital pen is of great importance. If no hospital pen is had then some clean well lighted room in a building should be used. Bottomless boxes should be built 18 inches square and 18 inches high, fitted with screen covers. Place these boxes on clean sheets of heavy wrapping paper laid on the floor. After each fox pup is treated, it is placed in a box by himself and kept there until treatment and results are fully completed, which sometimes lasts a whole day. Enough boxes can be built to treat six litters in one day.

No morning ration should be given the mother on the day the pups are to be treated. The keeper should be provided with a carrying box which may contain two compartments for as many litters. The female is first shut out from the den by a slide door. The pups are then removed from the nest box and placed into one of the compartments of the carrying box. The nest box may be cleaned of any refuse at the same time. The mother fox should be kept shut out from the den while the pups are away. As long as she cannot get in to see, she will not suspect that they were taken away. The pups are now carried to the hospital pen for treatment.

There are a number of vermifuges on the market which give excellent results. The rancher should select that vermifuge which from experience has given the best results. Vermifuges combined with cathartics are the best for puppies. If a new vermifuge is desired to be tested it should be tried

on pups of the same litter, one half the litter should be treated with a known vermifuge and the other half with the new vermifuge. The vermifuges used by the writer is Glovers' Imperial Puppie Worm Vermifuge, also one to two drops oil of Chenopodium in a teaspoon of castor oil, the last on puppies more than four weeks old.

Pups should be placed in the individual boxes and starved for two hours before they are treated. Pups treated on a full stomach may become seriously sick. If the litter is heavily infected each pup should be treated two times, the second dose following two hours after the first dose. In fact it does no harm but is productive of better results to treat each pup two times. The first dose may be three-quarter strength and the last dose full strength. A pup heavily infected with worms may pass only a few worms from the first dose. The second treatment, however, usually brings them all out.

After each treatment, the papers in the bottom of each box with worms are burned and fresh paper put down. When treatment of pups is started early in the morning the pups will be ready to take back to their dens immediately after dinner. The pups are carried back to their dens in the carrying box and placed into their respective nest box. Just before the slide door of the chute is opened for the mother, a piece of meat or rabbit is thrown to her. The keeper should then leave the pen immediately and retire to the watch tower and keep a sharp lookout. The female will go in to the den, reappear in a few seconds, take a look around, then will go back in. If she remains in all is well. If she attempts to bring out the pups this can easily be stopped by approaching the pen.

The few remaining Belascaris worms in adult foxes causes the infection of this worm in the young pups. The exact manner of this infection, whether by means of swallowing the developed egg embryos off the ground or mother's mammae which is doubtful, or by other means has not entirely been worked out. It is probable that a thorough removal of Belascaris worms in pups by the method outlined above or by a similar thorough method is a step in the entire eradication of Belascaris worms from the ranch.

References—M. C. Hall, Comparative study of methods of examining feces for evidence of parasitism, 1912. Animal Industry Bul. 135.

DON'T HIDE YOUR LIGHT

We honestly believe that more live foxes are going to be sold during the year 1922 than in any other year since the fox industry obtained a foothold in the United States. Now is your chance. If you are going to have some 1922 pups for sale, now is the time to let the prospective buyer know about it. Don't hide your light under a bushel but advertise your foxes in the "AMERICAN FOX AND FUR FARMER." We confidently believe that this publication is reaching more prospective purchasers of foxes and other fur-bearing animals than any other publication in the United States. We have recently inaugurated a countrywide campaign among the farmers, trappers, poultrymen, etc. that will place the "AMERICAN FOX AND FUR FARMER" before thousands of men whom we believe will eventually become fox ranchers and fur farmers. Get into our advertising columns now.

A FINE CALENDAR

This office is in receipt of a beautiful calendar from The Rest Island Silver Fox Co. of Lake City, Minnesota, which consists of a beautifully illustrated halftone cut of some of their foxes and of a birdseye view of their ranch. The calendar is a fine piece of the printer's and engraver's art.

FEED CHART FOR FOXES

By THE REST ISLAND SILVER FOX FARM

Lake City, Minnesota

SEPTEMBER—Morning Feed:

Bread and Milk. (See Note 10.)

Evening Feed:

Monday, Wednesday, Friday, boiled feed. (See Note 8.)

Tuesday and Saturday, fish.

Thursday, raw horse meat.

Sunday, dog biscuit.

OCTOBER, 1-15—Same as September.

15-31. Evening Feed:

Six feeds of the boiled feed.

Sunday, dog biscuit.

NOVEMBER, 1-15—Same as October 15-31.

15-30. Morning Feed:

Light feed of raw horse meat and ground bone.

Evening Feed:

Six heavy feeds of boiled feed.

Sunday, dog biscuit.

DECEMBER—Morning Feed:

Fish every other day.

Evening Feed:

Light feed of raw horse meat three nights.

Heavy feed of raw horse meat three nights. (On evenings of the days the morning feed is skipped.)

Sunday, dog biscuit.

JANUARY, 1-15—Same as December.

15-31. Morning Feed:

Fish three feeds a week.

Raw horse meat and ground bone four feeds a week.

Evening Feed:

Six feeds raw horse meat and ground bone.

Sunday, dog biscuit.

FEBRUARY—Morning Feed:

Feed all they will clean up same as January 15-31.

Evening Feed:

No dog biscuit. Two feeds a week of quartered rabbit.

MARCH—Morning Feed:

Same as February. Change to milk and bread as females approach two weeks prior to whelping time.

Evening Feed:

Tuesday and Friday feed ground beef and bone or quartered rabbits.

Monday, Wednesday, Thursday, Saturday and Sunday, feed the boiled feed.

APRIL—Morning Feed:

Bread and milk to all that will take it. (See Note 2.)

Evening Feed:

Five feeds of boiled feed. Two feeds ground beef and bone or quartered rabbit, same as in March.

MAY—Morning Feed:

Bread and milk.

Evening Feed:

Monday, Wednesday, Thursday, Saturday and Sunday, feed the boiled feed.

Tuesday and Friday feed ground beef and bone or rabbit.

JUNE—Morning Feed:

Same as in May.

Evening Feed:

Same as in May, except Sunday feed dog biscuit.

JULY—Morning Feed:

Same as in May.

Evening Feed:

Monday, Wednesday and Friday, feed fish.

Tuesday, Thursday and Saturday, boiled fish.

Sunday, dog biscuit.

AUGUST—Morning Feed:

Same as in May.

Evening Feed:

Same as in July.

chicken heads, beef hearts or tripe.

2. To change to soft feed:

a. Feed raw egg with milk.

b. Feed raw egg with milk and bread.

3. A quarter of a small rabbit or sixth of a large may be substituted for ground beef and bone or vice versa, which proves most practical.

4. Skip a feed a week the year around except for eight weeks after whelping.

5. Always skip a feed if previous feed is not cleaned up, except as in 4. (See 2.)

6. Fat foxes will not breed well.

8. Boiled Feed: Ground horse meat, ground bone and rolled oats.

a. Five parts water.

b. $2\frac{1}{2}$ parts ground horse meat.

c. $2\frac{1}{2}$ parts ground bone.

d. Two parts rolled oats.

e. A small amount of salt.

During October and November add one tablespoon of black strap per fox.

9. Milk should always be new milk.

10. In the morning feed if stale bread cannot be obtained, oat meal cooked as a cereal or waste shredded wheat which can be obtained from the factory at a reasonable price, makes as good a feed as does the bread and milk.

11. A female should be given a laxative at least a day or two before she is to whelp. A piece of fresh liver or raw egg are good laxatives. Most females will miss a feed before whelping.

12. Keep your foxes free from fleas. Bubach is the powder to use. Kreso Dip is also good but care must be taken not to get it too strong. Use about four ounces of Kreso Dip to twelve quarts of water.

} Boiled five hours

EVERY FUR FARMER SHOULD BE INTERESTED The Bureau of Biological Survey Requests Your Co-operation in Properly Listing the Fur Farmers of the United States—Do It Now and Assist Your Government to Assist You

Dr. E. W. Nelson, Chief of the Bureau of Biological Survey, U. S. Department of Agriculture, desires to keep in touch with and to assist as far as may be possible the progress of fur farming in the United States. For this reason the Department desires to obtain a complete list of the names and addresses of all persons who are breeding fur-bearing animals in captivity, together with information as to the success of that breeding, the prices at which the animals are sold, where breeding stock may be obtained, and numerous other questions of a similar character. In order that such questions may be answered satisfactorily the Bureau is sending out a card to all fur farmers whose names appear in their files. In case you have not received a copy of this card from the Bureau of Biological Survey, it is desired that you immediately write for one and it will promptly be forwarded to your address. It is to your interest to fill out this card to the best of your ability. You, as well as other breeders of fur-bearers, will profit by furnishing these data and thus assist in fostering the whole fur farming industry. The information has no connection whatever with taxation and will be kept confidential if desired. Please pass this information on to your friends who are interested in fur farming and do not fail to send in your card if you have one, or write for a card if none has been sent you.

NOTES:

1. Feed no raw horse meat to females after two weeks prior to whelping. If they will not take soft feed, give a feed of

AMERICAN FOX FARMS INCREASE

Report from Biological Survey, United States Department of Agriculture

Fox Farming is fast gaining favor in the United States. The industry, barely known a decade ago, is fairly common in some States of the northern tier, is represented in all States in this tier and in that next to it, and is growing rapidly. There is money in it for the raiser who starts modestly, learns the business, and then expands his holdings. There are losses in store for the tyro who starts with a big ranch, no knowledge of the business, and only a desire for quick profits. At the present time the industry is undergoing a process of stabilization. Most fox farmers raise animals for breeding purposes, and comparatively few have adjusted the business to a pelt basis. All told, there are between 10,000 and 15,000 silver foxes being grown in captivity on American fox farms at this time.

Such are some of the conclusions of a representative of the Biological Survey, United States Department of Agriculture, who has just returned to Washington after an extensive investigation of American fox farms and the methods of their operation. In Canada, where the industry originated, and especially on Prince Edward Island, where there are approximately 15,000 foxes in captivity, fox farming is conducted on a much more extensive scale than in the United States. Its promise of good financial returns to those willing to master its problems gives indication that within a comparatively short time in this country it will rival in proportions the industry in Canada.

The best location for a fox farm is where the Winters are cold and the fox may have opportunity to develop fur in keeping with the needs of the climate. The industry is thus confined by climatic conditions to the Northern States. There the raising of foxes for breeding and for the fur markets flourishes. Most of the foxes raised in captivity are on farms, or "ranches," with pens for from twenty-five to fifty pairs, although in occasional instances the ranches are much larger, containing pens for as many as 150 pairs.

Most of the fox raiser's troubles come when the young are a few weeks old and are peculiarly susceptible to attacks from worms. Great care is necessary to carry the young foxes through this period.

It is not advisable to kill a fox for the pelt before eighteen months of age, for at that time its fur is more valuable than at a younger age. Comparatively few of the foxes raised on American ranches are sold at the present time, however, for their pelts. Most of the ranchmen obtain higher values than the worth of the pelt by selling the live animals for breeding purposes. A good pelt may bring as much as \$600, though the average is much lower, approximating \$250 to \$350. The furs are comparatively little known because of their rarity. Silver foxes vary from those in which the color is entirely silver to those in which it is entirely black except for some white-banded hairs on the back and rump. In the black fox the white is absent from all parts except the tip of the tail, which is generally white in all phases of the animal.

BOOK REVIEWS

"Child Welfare," edited by James H. S. Bossard, Ph. D., Assistant Professor in Sociology, University of Pennsylvania. This is the November, 1921, issue of the Annals of the American Academy of Political and Social Science. It is divided into three parts, Part 1, dealing with the positive welfare for all children; Part 2, problems and programs involving special groups of children; Part 3, Child Welfare Programs, with an appendix by the Editor in charge, Clyde L. King.

A FUR FARM PROFITABLE

Ex-Miner and Shipwrecked Sailor Founded Unique Enterprise—Two Men Raise Silver Gray Foxes on Alaskan Island to Provide Milady with Winter Coats

Portland, Ore.—A former "sourdough" miner and a shipwrecked sailor are proprietors of one of the most curious farms in the north country; raising silver gray foxes on the Island of Ugak, six miles off Kodiak Island, in the Pacific ocean near the Alaskan coast.

Z. T. Hafferty went to Alaska during the gold rush of '97, and after experiencing various shades of fortune decided that fox farming is a better method of making money than mining. Gus Olsen, his partner, arrived at Ugak Island on a bit of driftwood after being shipwrecked in 1898, and has never left the north land.

The two bought the entire island, consisting of about fifty thousand acres, seven years ago and "planted" three pairs of silver gray foxes. These have multiplied until sixty pairs now roam their land, and within two years the two "old-timers" expect to sell fifty pelts each spring.

Hafferty arrived in Portland a short time ago with sixteen pelts to be disposed of, and will return to Alaska in a few weeks.

Hafferty is a United States commissioner at Kodiak, and Olsen now does most of the work on the ranch.

"For ten months of the year he is the only human inhabitant of the island," said Hafferty. "But it is a life he loves."

Acts as Policeman

"Our main trouble is with eagles," Hafferty continued. "They swoop down and carry away the fox pups when they are too young and small to protect themselves. Olsen devotes most of his time in the spring and early summer to killing these eagles. This spring we shipped sixty-five pairs of eagle claws to Juneau, for which we received 50 cents in bounty. Olsen spends the rest of his time patrolling the island against native hunters who attempt to land and trap the animals we are farming.

"One might get the idea that these animals are domesticated, but they wander over the island at will, and must be trapped just as though they didn't live on a farm.

One Pair Worth \$1,500

"We hired two native trappers during the winter," Hafferty explained, "paying them \$50 a month and \$5 a pelt bonus, in addition to their board. Thus far we have not been compelled to feed the foxes, as the island is well stocked with game and fish drift to shore with cross currents. When a large whale goes ashore it provides feed for the foxes for at least six months."

At present market quotations a pair of young silver gray foxes alive, are worth \$1,500, Hafferty said. Native Indians capture the fox pups and raise them from spring until fall, when they are old enough to sell and place on the farm. The animals mate during February and the young are born in May.

There is only one other fox farm in Alaska, on Middleton Island, near Valdez. It is the larger of the two, but Hafferty hopes within a few years to raise as many bearers of milady's furs as the Middleton Island farm.

When writing advertisers, please mention that you saw their advertisement in the "American Fox and Fur Farmer."



RANCH OF THE SHEFFIELD SILVER BLACK FOX COMPANY

CROSSING THE ALASKAN AND STANDARD

By CHARLES M. DANIELS,
Sabattis, N. Y.

There has been much said, and little written, recently, of the crossing of the Alaskan and the Standard bred fox. Opinions differ rather widely on the matter, and if I can make it a little less obscure, I will have accomplished my intention, in publishing a brief account of my personal experience.

This account is published with the approval of Mr. Robert T. Moore, owner of the Borestone Mt. Fox Ranch, who believes that full publicity should be given this experiment for the benefit of all fox breeders.

It is quite possible that a Prince Edward Island fox may be mated to a central Canadian fox or even one from the Peace River locality with good results. It may also produce an excellent type of fox if one is taken from either of the latter two places, and placed with an Alaskan. In either instance, the test would not be a true one. To be conclusive, it would be necessary to use eastern foxes of the best breeding, and the genuine interior Alaskan.

With these ideas in mind I conducted an experiment during the season just passed. It appears to me, that if a majority of the more desirable features of each, were retained in the resulting offspring, the hybrids would be better foxes than either of the parents. The result was extremely disappointing.

Anxious to make the test as thorough and accurate as possible, I decided to use Borestone foxes for the Standard

side, as, in my opinion, they are, to say the least, equal to any.

One black male and three black females were secured from the Borestone Mt. Ranch, and these were mated with Alaskans of my own, varying in silver from one quarter to one half. On each side the pedigrees exceeded the four generations required for registration purposes.

The four litters, representing thirteen pups, offered a variety of color, rivalling the window display of any furrier, or, from a silver down to quite an ordinary cross.

In the case of the silvers, there was not a feature that equalled that of the parents, with the single exception of size. The silver hairs were not well placed, and were also too prominent due to the unaccountable width of the silver bands on the guard fur.

With the exception of two of the ten cross pups, which exactly resembled the usual run, they were a very fine lot, for crosses. Some of them showing no silver hairs beyond the hips, simply the blending of the black and red guard hairs, for three-quarters of their length, making a very attractive appearance. On two of the pups the silver covered the hips only, the remainder being a very fine blue black fur of excellent texture, and the ears themselves being covered inside and outside, with red, but with none of the latter color encroaching on the neck or head, as is usually the rule with dark crosses. In size, these crosses left nothing to be desired, as they averaged fifteen pounds, including the females, when ready to pelt. As there is practically no difference in texture of fur between the true interior Alaskan and the best Standard bred fox, this remained the same.

An interesting point noticed in the hybrids, was the color of the iris. In the true Alaskan this is a clear yellow,

while in the Standard it is brown. There was no attempt made by nature towards a compromise, by a change in color. Nine of the pups had brown eyes, the other four yellow, following Mendel's theory.

It would have been most interesting, and possibly valuable to the fox industry, to carry the experiment still further by breeding these half breeds back to both Alaskans and Standards, but unfortunately it could not be done here owing to the lack of room. It is quite possible, however, this additional information may become available next year, as a large proportion of the pups in question went into one ranch through purchase.

U. S. OFFICIAL LOOKS OVER THE FOX RANCH

**Lieut. F. G. Ashbrook of the Bureau of Biological Survey,
U. S. Department of Agriculture Congratulates
Company**

From Boonville Herald, February 2nd, 1922

Lieut. Frank G. Ashbrook of the Bureau of Biological Survey, United States Department of Agriculture, was in Boonville a few days ago for the purpose of inspecting the Boonville Fox Ranch. He has spent some time touring the country inspecting ranches of the United States and Canada and in all he has looked over at least one hundred ranches, comprising the best in the United States. He was interviewed by a member of the Herald staff and among many other things said, "I consider the Boonville ranch one of the best equipped and most sanitary, best located, and best cared for ranch I have yet visited." He was also impressed

with the amount of capital invested and in that connection stated, "the model and modern equipment not only in this instance, to my mind emphasizes the confidence that men of sound business judgment have in the fox industry and augurs well for its future." He said that Dr. Young impressed him as one who is well versed in veterinary science and animal husbandry.

It was a source of great regret that Lieut. Ashbrook was not able to go through the ranch and look over the various individuals because at this time the mating season is at its height and strangers of all degrees are kept from close contact with the animals, but he was able to see a number from the lookout and he said that they were as fine and as uniform a lot as he had seen in any other of the ranches.

During the past year perhaps every fox man of national prominence has visited the local ranch and it is a source of gratification to know that they have unanimously given our ranch the highest possible tribute, as to layout, completeness, and more especially the animals on the ranch. The dividends have not yet been large but it is safe to say the prospects for the future are indeed bright.

Lieut. Ashbrook said that he does not believe there ever will be a time when the industry will be threatened with an over-production of prime silver fox furs and this statement should add confidence in the project and its investors.

Subscribe to the American publication for the American breeder.

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AN ARISTOCRAT

The Animal Parasites of Foxes

With Notes on Treatment and Prophylaxis*

Author's Abstract by Maurice C. Hall

Senior Zoologist, Bureau of Animal Industry, Washington, D. C.

Foxes are infested with about 70 species of parasites, some of the more important are discussed here from a practical standpoint.

Coccidiosis

This is a disease due to coccidia, which are very small, one-celled organisms, usually in the liver or intestines. The form found in foxes is very similar to that found in the dog and cat. Foxes infested with this parasite or other parasites cannot be imported into the United States. Of 53 imported foxes, four have been found infested with coccidia. The parasite has been reported from swift foxes, in one case in connection with a pronounced diarrhea, the animal dying in the course of a week. In dogs it has been found that a diarrhea occurs in from one to six days after the coccidia are found in the droppings. There is no fever in dogs infested with coccidia, though the temperature ranges near the higher limits of the normal range of temperature for the dog during the time the coccidia occur in the droppings. The disease is apparently self-limited, tending to die out spontaneously. Apparently dogs may develop an immunity to this parasite in some cases, and probably the same is true of foxes.

The coccidia leaving the dog in the droppings develop in two days to two weeks to the stage where they will infect other dogs and after these infective coccidia are swallowed by dogs they develop in the dog to the point where they begin to pass in the droppings in the course of three or four to eleven or twelve days. The entire life cycle requires, therefore, from five to six days to about a month. Probably the same is true for coccidia in foxes.

At present we have no satisfactory treatments for coccidiosis in foxes or dogs. The parasites develop under the lining of the intestine, apparently out of reach of drugs. However, the fact that the disease is self-limited suggests that the best line of treatment is nursing treatment, the animal being well fed and protected to carry it over the danger period. Infected animals should be isolated and all the droppings burned or safely disposed of to protect other animals. Cleanliness and dry, well-drained quarters are the most essential things for preventing infection. Droppings should always be regarded as dangerous, since they carry coccidia, worm eggs and other disease organisms, and should be removed as often, as promptly and as thoroughly as possible.

Tapeworms

Tapeworms do not appear to be common in American foxes, none having been found in 53 imported foxes and none found by Allen on Prince Edward Island. However, more than half of a lot of 18 foxes from St. George Island, Alaska, had tapeworms, sometimes in large numbers. Most of the tapeworm species occurring in foxes come from eating raw or only slightly cooked meat, viscera, fish, etc. con-

taining the larval stages of tapeworms. Thorough cooking of these foods is the essential measure for preventing a tapeworm infestation in foxes. More work is required in developing a satisfactory treatment for tapeworms in foxes. The treatment which has been found entirely satisfactory by Dr. E. T. Davison of the Bureau of Animal Industry at the Quarantine Station at Athenia, New Jersey, in removing tapeworms from dogs, consists in fasting the dog overnight, then giving four 10-grain capsules (those holding 10 grains of quinine) full of oleoresin of male fern with an ounce of milk, followed 45 minutes later by four 10-grain capsules full of freshly-ground areca nut with an ounce of milk. The dose for a 15-pound fox would apparently be about two-thirds of this dose of male fern and of areca nut.

Ascarids

Ascarids appear to be less common than hookworms in foxes in this country, although they may be present in large numbers in fox pups. These ascarids are large white or yellow worms, usually found in the small intestine. They cause pot-belly, constipation or diarrhea, unthriftiness and convulsions in young animals. It is probable that young stages of this worm passing through the lungs may at times cause lung trouble in young animals.

It is highly important to protect young animals from infestation with these worms, as they are apparently much more susceptible to infection and more subject to injury than are older animals. They seem to develop some degree of immunity with increasing age and it is probable that if young foxes can be carried past the danger period of youth they will suffer little from these worms afterwards. Cleanliness about the yards and dens is the most essential protective measure, though it is probable that some pups are infested by swallowing worm eggs on the teats of the vixen when nursing.

Apparently foxes will tolerate oil of chenopodium in doses large enough to remove all of these worms. Santonin is less effective when given in single dose, and should be given in small daily doses for several days to develop its greatest efficacy. It should be given with an equal amount of calomel. Carbon tetrachloride, which is our most effective remedy for removing hookworms, is also effective in removing ascarids.

Hookworms

Foxes are infested with two species of hookworms, one of them being more common in foxes than in dogs in this country and the other more common in dogs than in foxes. Hookworms are quite common and dangerous parasites of foxes. They cause an anemia, or watery condition of the blood, and with this there is often an edema, or watery swelling along the pendant portions of the body, due to the leakage into the tissues of serum from the thin, watery blood. There are also digestive and nervous disturbances associated with the presence of these worms and the animals become weak and unthrifty. These conditions are reflected in a poor condition of the coat. As in the case of most

*Read in abstract before the meeting of the American Fox Breeders' Association at Boston, January 18, 1922.

other worms, hookworms are most common in young animals and do the greatest amount of damage to pups.

The drug which has been most satisfactory in removing hookworms from foxes is carbon tetrachloride, the dose for a 15-pound fox being about 2 cc. This should be given in capsules, without purgation, to animals fasted overnight. This drug is very safe and effective when introduced into the digestive tract. Care must be taken not to get the drug in the lungs either in the capsules or as a result of the breakage of the capsules. To this end the breeder should employ a competent veterinarian to administer this drug, and in fact should always employ a good veterinarian to handle diseases in his stock.

Hookworm eggs pass in large numbers in the droppings and in time hatch. The young worm reaches an infective stage in the course of time and may then enter foxes by way of the mouth in food, water, etc., or may enter the skin, especially through the feet. After wandering through the body, these young worms ultimately reach the intestines and become mature. Prevention is again a matter of sanitation and cleanliness. Woodwork and concrete may be cleaned with hot water and lye, or with hot coal-tar solutions. Surface soil may be scraped off and replaced by clean soil, or spaded under. Good drainage is desirable. Moisture and warmth favor the development of parasites. The lack of moisture is unfavorable to the parasite. Protection for the pups is highly important. Infested foxes should be isolated and treated, and new stock should be kept separate from clean stock until it has been examined and either found free from parasites or freed from those that are found.

Lungworms

The lungworms most commonly found in foxes are forms closely related to whipworms and similar worms. The male worms are about an inch long and the female worms somewhat longer. The eggs are lemon-shaped and are deposited in the air passages, being subsequently coughed up and swallowed, passing out in the droppings. They are easily mistaken for eggs of the whipworm, but can be distinguished from whipworm eggs by their smaller size. These worms appear to be fairly common in foxes in North America and have been found in over one-third of 53 foxes on examination of the droppings. These worms are usually present in small numbers, but in one case the bronchi of a fox sent in to the federal Bureau of Animal Industry were found to be obstructed by large numbers of these worms. The only treatment for lungworms in foxes which can be recommended at the present time is nursing treatment. Infested animals should be isolated and given nourishing food and care until they have recovered from the infestation. As in the case of most other parasites, cleanliness and other measures of sanitation are the best means of preventing the occurrence and spread of lungworms in foxes.

Mange

Three forms of mange are reported from foxes. Demodectic or follicular mange, a very serious and intractable form of mange in dogs, is evidently very rare in foxes. Sarcoptic mange is said to be rather common, and as this skin disease injures the pelts very seriously it is of primary interest to fox breeders. The injury does not stop at the skin, and if the disease is allowed to run its course infested animals not infrequently die. The disease spreads rapidly among animals in confinement, and infested animals should be promptly isolated at a safe distance from healthy animals. It is advisable to call in a competent veterinarian to deal

with this disease. Little seems to be published in regard to the treatment for mange in foxes, but it is probable that remedies which have been found safe and effective for mange in cats, such as Helmerich's ointment, would be safe and effective for mange in foxes. Ear mange of foxes, which appears to be due to the same mite which causes ear mange in dogs and cats, is quite common in foxes in North America. These mites cause itching, which results in the fox rubbing the ear, sometimes until the rubbing does more damage than the mites. Symptoms of nervous disturbances sometimes result from ear mange. Apparently the disease is easily cured by persistent treatments at suitable intervals. One application in the case of many substances will often kill all the mites present, but will fail to kill the eggs, and it is necessary to repeat the treatment at 10-day intervals or oftener to kill the mites hatching from these eggs. Among the substances used to treat ear mange are equal parts of Peruvian balsam and glycerine, or one part phenol and nine parts oil, or one part chloroform and seven parts oil. Dr. J. E. Shillinger and the writer have successfully treated ear mange in cats with a mixture of one part carbon tetrachloride and three parts castor oil. In all outbreaks of mange of any type whatever, it is necessary to thoroughly clean up and disinfect the areas occupied by diseased animals, as well as to treat the animals themselves.

Summary

Foxes are infested with a large number of parasites, many of which cause serious injury when present in large numbers and sometimes even when present in small numbers. Among the more important are coccidia, tapeworms, ascarids, hookworms, lungworms and mange mites.

Where parasitic diseases or other diseases are present it is always advisable to employ a competent veterinarian. The diagnosis of disease and the administration of potent drugs, often capable of causing death when given unskillfully or in improper doses, is distinctly a matter which calls for suitable training and experience, and the fox breeder who undertakes to fill the function of the veterinarian is liable to come to grief sooner or later.

The prevention of disease is the function of the fox breeder, although it is advisable that he secure the advice of veterinarians and specialists so far as possible. Sanitation is the most essential thing in preventing parasitic diseases. Cleanliness is necessary. The droppings of foxes must be regarded as potentially dangerous, since they carry the parasite eggs and larvae and such stages as the coccidian oocysts. The frequent and thorough removal of these droppings is highly advisable in order to remove this important source of infection. Good drainage to keep the runs dry is advisable, since dryness is unfavorable to parasites. Sick animals should be isolated to prevent the spread of disease. The greatest danger period is youth, and young foxes should be given the best possible surroundings in order that they may be tided over this period and allowed to attain the relative immunity conferred by age. Good feeding is essential to build up resistance. Thorough cooking of meat, fish, viscera, etc., is a measure of value in preventing infestation with many kinds of tapeworms.

Since many of the parasites of foxes are also parasites of dogs and cats, foxes should be kept from contact with these animals unless these animals are known to be free from parasites. This should be kept in mind in providing cats to nurse fox pups.

When writing advertisers, please mention that you saw their advertisement in the "American Fox and Fur Farmer."

QUESTIONS AND ANSWERS

This Department is open to our readers for the asking and answering of any questions connected directly or indirectly with fox and fur farming. It is not the intention of the Editor to answer these questions from the office of the publication, but rather to allow our readers to answer them from their wide and practical experience in the industry. Answers sent in care of the publication will be promptly forwarded to the one making inquiry.

Q. Will fur companies accept wild rabbit and house cat skins

A. Wild rabbit skins are bought by the pound, if bought at all. House cats are bought regularly.

Q. What materials and how are they used for tanning a hide?

A. Tanning can be done by soaking the skin in lime water, to remove the hair, and then after hair is scraped off, soak in half a bushel of oak bark cut up fine and covered with water. Salt, alum, borax, equal parts, 2 ounces saltpetre to pound of each, will tan a skin. Harding's book on tanning and home handling of hides and furs will help you.

Q. 1. Name standard formula for dyeing opossum fur taupe.

2. How are muskrats dyed black?

A. 1. I find no standard formula for bleaching opossum to mole color. There are various bleaches, but the lightening process, and dyeing process does not improve the natural fur, and changes in color are made as infrequently as possible, or fashion will permit. Two ounces of soda to a quart of water, and immerse the skin in it for two hours. Take peroxide of hydrogen and water, equal parts. Soak skin in this for ten or twelve hours. Dry in sun or not too near a stove. Shake out and comb. This is from "Home Manufacture of Furs" (Pub. by A. R. Harding, Columbus, Ohio), a book you will find useful. This bleaches the fur.

2. Gall nuts, copper dust, camphor and antimony are used in various proportions by the English seal dyers, who are the best. Trades guard the exact formulas closely. Harding's book will help you. But no one says home dyeing can be successfully done without a lot of experimenting, practice, and effort.

LIEUTENANT ASHBROOK IN NEW YORK STATE

Lieutenant Frank G. Ashbrook of the Bureau of Biological Survey, United States Department of Agriculture, has just finished his visits to the fox ranches of New York State. Lieut. Ashbrook has been very cordially received by the ranchers of this section of the country, for they recognize in him a representative of the United States Government who is anxious and willing to assist the fox rancher in every possible way.

Lieutenant Ashbrook spent a couple of very pleasant hours with the Publishers of "The American Fox and Fur Farmer" and one only needs to talk with Lieutenant Ashbrook to find out that he is absolutely in earnest in the work that he is engaged in for the United States Government.

The only regrettable thing is that the United States Government has not twenty-five or fifty such men out on the road as Lieutenant Ashbrook. If this were true, the raising of fur-bearing animals in captivity would be an assured success from the start, because after all it does need a supervision and a spreading of technical knowledge in order that the work may be successfully accomplished.

While in Utica Lieutenant Ashbrook attended one of the weekly lunches of the Exchange Club of Utica, where he spoke to the members on the raising of silver black foxes in captivity. Taken altogether, the visit of Lieutenant Ashbrook to New York State will be one that will be long remembered by the ranchers of the State. While in this immediate vicinity, Lieutenant Ashbrook visited the ranch of The Central New York Fur Co. at Boonville, N. Y., and the ranch of The Adirondack Mt. Silver Black Fox Co., Inc., at Remsen, N. Y.

CORRESPONDENCE

Traverse City, Michigan, January 25, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

We note with pleasure what the magazine is doing to spread the work and we anxiously await each copy. We enjoyed one of the best seasons in our experience, and our foxes are in the best of condition.

Very truly yours,

GORDON SILVER BLACK FOX CO..

By Eva Gordon.

Reno, Nevada, February 4, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

Your publication is of the greatest interest and I think if you send sample copies to the following people, who have recently become interested in the industry, that you will receive a great number of subscriptions.

Yours very truly,

C. D. WOODWARD.

Albany, N. Y., February 3, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I have looked over with interest your splendid issue for January. There are many interesting articles and pictures in the magazine.

Wishing you continued success in your enterprise, I am

Yours very truly,

LEOPOLD L. WILDER, Managing Editor,
"The National Humane Review."

So. Bellingham, Wash., January 30, 1922.

American Fox and Fur Farmer
Utica, New York

Dear Sirs:—

Someone was kind enough to send me a copy of your December issue of "The American Fox and Fur Farmer" and while at present I am not interested financially in fox farming nevertheless I read the article "Food Nutrition in Foxes" on page four and enjoyed the article very much.

I realize that the subject of feeding and feeds is a very important one. We are trying to raise a few mink. The mink we have were caught in traps and will not eat anything but meat. We are entirely ignorant as to any method of feeding or kinds of feeds or meats that will be properly balanced in minerals, etc., as the only thing we can get them to eat is fish. Should you know of anyone, any authority or information that will be of any help to us in getting started we would be very grateful indeed. The most important thing just now is what can we feed besides fish?

We like your magazine very much and will try and take it for a year in the near future.

Thanking you in advance I remain,

Yours respectfully,

RALPH L. SQUIRES,
So. Bellingham, Wash.

Troy, Missouri, January 24, 1922.

The American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I have noticed several articles in your magazine, and in two other magazines in regard to forming an Association, something like the Fruit Growers Association. I have noticed that all of these articles have sanctioned this association, and that most of the fox ranchers are in favor of forming this association and my suggestion is, let us quit talking so much and get down to work, and make this organization a reality instead of a myth.

I have talked to several ranchers and have written to others, and some think that times are not just right to start work but my idea is that times were never better and the sooner we start work the sooner the organization will be a reality, there is no question but that we will need it, and there is no reason that we should hesitate any longer. My suggestion is to get together and thrash the matter out.

Here is a suggestion and I wish it understood that I do not wish to profit from it in the least. I want to see the association a reality. I have some time on my hands at present and am willing to act as Secretary for the intended association, and until the first meeting. My plan would be to secure the membership of every fox rancher in the United States and Canada. When every rancher is a member of this intended association, then call a meeting and form the organization. Organizing and shaping the policy of the association or appointing a committee to investigate and report what our policy should be. I would issue these memberships at say \$10.00 each and then when every rancher and Company is a member, for we could not move until we had every man with us, then the meeting could determine the amount of membership. My idea in putting the cost at \$10.00 would be to defray the first expenses of the Association and keep the full expense from falling on just a few if a Corporation were formed and then tried to bring in the other ranchers.

I am perfectly willing to take care of all the correspondence and to take care of all the advertising, until the first meeting, all I will ask is that the Association refund me for the actual expense of handling the correspondence and advertising. Those Memberships can be mailed to me and either president of either bank here, will be glad to help out in this matter, by taking care of the money. This money will be kept intact by the president of this bank and turned over to the proper person at the first meeting of the members. My reason for issuing these memberships would be that some people can not see the reason for an association and would hold back until it was organized by some one else before coming in and my idea would be to get every man interested first, then hold the meeting and organize.

You know as well as I that it will only be a question of time until production will surpass demand at the present prices and that the fur houses will then have us at their mercy, and all ranchers realize this as well as the fur men. The number of fox men and fur ranchers are comparatively small now to what they will be two or three years from now, and our time to get the upper hand is at present before it grows too large. By taking hold of the reins now we can secure each rancher as he starts in this industry and keep our control. The Fruit Growers who were many times more numerous than we are, made a success of this and we can do the same if we start out with the idea that it is needed, and must be accomplished, for our own profit and protection. A body of men working on this, and devoting their time to this Association can accomplish wonders in a short time and we can then get away from that fear of over production.

Whether this association would be international or confined to the United States could be worked out at the meeting as the Canadian side could organize parallel to the United States if it were kept at home.

Again stating that the only benefit I wish to receive is that, that the Association could give me in the way of keeping the price of my pelts to a respectable price, and I do not wish to profit in any other way from my work. I have the time and think that the sooner we start the better for us all.

Kindly give me your views on this matter and if I can get the sanction of all the magazines in this matter, will start out and make the fur fly until every man is with us.

Sincerely yours,

RICHARD A. TRAIL.

References, Peoples Bank, Troy, Mo.; Farmers & Mechanics Savings Bank, Troy, Mo.; any business house, Troy, Mo.

Friendship, N. Y., January 14, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

I am enclosing check for subscription. Am enjoying every page of every issue of your helpful magazine. Am sure success is yours with such an edition. I have a five pen ranch and from the happy contented way the fine silver blacks take to their new surroundings fully repays for effort it required to construct same in disagreeable Autumn days.

Sincerely yours,

L. D. SIMPSON, D. D. S.

Loon Lake, Maine, February 1, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

Best wishes for your success. The magazine certainly is good and the piece on Feeding is one of the few pieces that is really some enlightenment to the fox breeders.

Very truly yours,

J. LEWIS YORK.

Traverse City, Mich., Feb. 6, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

We are glad at all times to say a good word for the "American Fox and Fur Farmer" and see a great future for it in the fox industry. We consider the articles on "Feeding" in the last numbers the best that we have gotten hold of for some time, and we have read them with the keenest interest, and we feel sure that we have gotten some fine ideas from your good magazine.

Yours for better foxes,

GORDON SILVER BLACK FOX CO.

FOX BUSINESS GETTING REAL PUBLICITY

It is very evident that the largest papers of the country are no longer adverse to giving the Silver Black Fox industry the publicity which it deserves. Recently "The Boston Post," "The New York Times" and "The Chicago Tribune" all published cuts of "Sheffield Scout" in their Sunday edition.

This was a splendid compliment to the Sheffield foxes, and then too recently "The Springfield Union" had a half page write up by their special correspondent, illustrated by cuts of the prize winners, etc.

Gradually the papers of the country are waking up to the fact that the fox industry is a real business.

THE FUTURE OF THE NORTHWEST'S FUR SUPPLY

By HARRY J. LA DUE
St. Paul, Minnesota

The wild fur-bearers, once abundant in the Northwest, are fast diminishing in numbers, some varieties being practically on the verge of extinction. The contributory factors responsible for this state of affairs are many and varied.

The fisher and marten, never very abundant, and shy in the extreme, are exceedingly scarce and probably never will rehabilitate themselves. Their former range included the northern and northeastern forest region of the state. Lumbering operations have rendered this region somewhat undesirable for these two woods dwellers, and under the spur of high prices trappers have redoubled their efforts to take their attractive fur coats, long popular in the fur marts. Quite a few fishers were trapped last year, in fact, a perusal of reports from trappers licensed to trap in the Superior National Forest disclose the fact that almost as many fishers were taken as wolves. The future of the deer and small game supply of the north woods depends largely upon what is done in the immediate future to reduce the ranks of the destructive brush and timber wolf. The next Minnesota legislature can do more to conserve the valuable wild life of the north woods by providing adequate means for reducing the wolf tribe, than by the enactment of any other form of conservation legislation. Much dissatisfaction has been expressed over the bounty system now in vogue. Experience of the Federal Government in wolf eradication in the west would tend to the conclusion that better results might be had in Minnesota by using the same appropriation to hire expert wolf trappers and hunters. A small bounty such as this state now pays is inadequate. It furnishes insufficient incentive to trappers, and merely means that it costs the state \$7.50 for every wolf taken, whether by trappers or by hunters accidentally meeting with one of the beasts while afield. A big bounty would probably be equally inefficient, and would undoubtedly result in considerable fraud. By marketing the hides the Department could earn part of the necessary funds to carry on the work. The adoption of this system should be followed by an absolute closed season on fisher and marten for a term of years.

The complete extermination of the otter has been forestalled by the prompt action of state lawmakers. Several years ago the otter was given the protection of an absolutely closed season. Reports from the wilderness along the north shore of Lake Superior and along the Canadian-Minnesota boundary indicate that the otter is steadily reestablishing himself. One canoeist actually saw five otters in the Superior National Forest during a five weeks trip in 1920, and trappers have brought in very gratifying reports. Otter have also been noted in various other portions of the State. The animal is such a wonderful traveler that it is practically impossible to determine its plentifulness or scarcity in any one given district.

Several years ago the beaver tribe was so depopulated that their ultimate extinction appeared to be inevitable. The immediate enactment of wise conservation laws has, however, resulted in a remarkable "come back" on the part of this valuable fur-bearer, and today their lodges and dams may be noted throughout the north. Considerable complaints to the effect that beaver have flooded meadows, trails, roadbeds and have made serious inroads on pulp wood stands, have come to the Minnesota Game and Fish Department. All complaints are given prompt attention, and if well founded, complainants are licensed to take a certain

number of beaver. This ideal system insures the preservation of a breeding nucleus, an accomplishment impossible under the usual method of licensing every applicant.

The most persecuted fur-bearer of them all, the muskrat, is in dire straits. Once prevalent in countless millions, they have been trapped so extensively for the past six years that but a pitiful few remain. A few years ago their pelts brought but thirteen cents in the fur markets. Since then they have steadily advanced until in 1919-1920 they sold for \$4.00 to \$6.00 per hide. Professional trappers, farm boys and a good part of the army of unemployed made terrific onslaughts on the little beast, with the result that to-day, the muskrat is conspicuous only by its absence in its usual haunts. An attempt was made last year to give the muskrat the protection of a closed season by order of the Governor. Misguided individuals living in counties having within their borders considerable marsh lands protested so vehemently that the order was later rescinded. While some complaints are well founded, the vast majority are without foundation and really emanate from a desire on the part of the individual to take fur. Strange to say, complaints are few and far between when the law permits trapping during a prescribed open season. On extensive marshes trapping will not destroy sufficient animals to prevent some damage being done road-beds and grades. Several sensible remedies may be applied, the best one of which should be called to the attention of road engineers. Close woven wire netting laid along the grade and covered with gravel, rocks or rip-rap will effectually prevent the muskrat from digging into the grade. The prime fur that may be taken on the grade during the proper open season will, in time, more than pay for the wire and extra work entailed.

The raccoon, once plentiful along the streams and around marsh borders in the southern part of Minnesota, are confronted by the same conditions affecting muskrat, and their numbers are steadily decreasing. The total catch reported by licensed trappers during the past two years has averaged 1,300. The raccoon should be accorded the protection of a two-year closed season at once, if we are to preserve a fast dwindling breeding supply. Mink and weasel appear to thrive equally well in the wilderness or in thickly settled districts. At present these two species require no special protection. Trappers are of the opinion that the regulations governing the taking of mink are too severe, and contend that the animal is highly destructive to small game, and especially to muskrats. Their contention is not without merit. The writer has found mink tracks leading in and out of muskrat houses, and invariably have found the tell-tale splotches of blood that proved that Mr. Mink was not making a friendly call.

Mephitis Hudsonica, scent dispenser extraordinary, and known by the less elegant name of skunk, is waging a constantly losing battle against trappers, dogs and misguided farmers who lay all the blame for poultry depredations at his door. Being slow and clumsy in his movements and more or less given to promenading in broad daylight, the skunk is more frequently seen by rural dwellers than any other prowling fur bearer. His scent, of course, permeates the atmosphere far and wide, and very forcibly advertises his presence. However, many a wolf, fox, mink or weasel carries off the prize rooster that Mr. Skunk pays for with his life. When the army of beetles and grubs march on the farmer's crops a live skunk at large in the fields will be found to be of far greater value than the same animal's hide, very often unprime, hanging in the granary. At the least, the skunk should be accorded the protection of a closed season during the period when its fur is unprime.

(Continued on Page 21)

Notes of the National Silver Fox Breeders Association of America

By J. E. SMITH, Secretary

THE National Association is pleased to announce at this time that it will hold another Live Silver Fox Show this year. The dates have been set for Wednesday, Thursday and Friday, December 6, 7 and 8th. We know that a number of breeders, especially our Canadian friends, will be pleased to learn that this show is going to be international—open to the world—and that the best fox wins.

The Board of Directors of the National, knowing that the standard proposed at Montreal is not a perfect one by any means, and knowing that changes would necessarily have to be made from time to time as we advance, decided at its last meeting to adopt the so-called Universal Standard for scoring foxes. We hope that this step was one taken in the right direction and that the National will have a voice in any alterations that may be made in this standard in the future. No doubt the board will be criticised by many breeders who are members of the National Association and who were opposed to the adoption of this standard, but the board felt that it would be well to give it a trial this year anyway.

The last regular meeting of the association was held in connection with a banquet at "Brebners" and the results were more than gratifying. The meeting was called for 7:00 P. M. and when that time arrived we counted forty-five members, but before the evening was over a number of others came in. As soon as the members were seated the president, E. L. Ransford, required each member to rise, give his name and address, and state what ranch or company he was connected with. This seemed to get everyone acquainted and started things moving.

A number of out of town members were present, among them being Mr. O. W. McCarty, of the Calumet Silver Fox Co., Sherwood, Wis., Mr. Frank Agar of Langdon, N. D., Mr. T. P. Corwin, Hart, Mich., and Wm. E. Robb of Howell, Mich., all of whom gave very interesting talks on various subjects. Mr. Robb is Secretary-Treasurer and general manager of the Citizens Mutual Automobile Insurance Co., and came to Muskegon for the meeting in order to help formulate plans whereby it would be practicable to insure foxes. He gave a very interesting and instructive talk along this line and started a general discussion in which many very good suggestions were offered. A committee is appointed to work out details for organizing a mutual company to be conducted by the Association.

The Association is going to make a test case to determine whether or not silver foxes are taxable property. One local company has volunteered to represent the association and has refused to pay their taxes. The expense incurred in carrying this thru the courts will be stood by the association.

The meeting was voted a big success and a resolution was passed that we continue the practice. Mr. J. A. Allen, veterinary inspector for the Canadian Government will be present at the meeting March 1st and will give a lecture on the diseases of foxes, their prevention and cure. He will also give a general talk on the industry at large on the Island. A large attendance is expected at this meeting, and members are requested to make reservations as soon as possible. The feed and cigars at the last meeting were mighty fine, and we promise you that everything will be just as good next time. Members bringing new members with them are

not required to pay for theirs nor their guests suppers. Our last meeting netted us five new members.

Owing to the rapid growth of the Association and its need for larger quarters the board has leased offices in the Rosen Block, and will move at once. The offices are being equipped throughout with new furniture and fixtures. Look us up the next time you are in Muskegon.

The secretary has taken steps to secure tattoo instruments for marking foxes that are registered and that are to be registered in the Advanced Registry. All foxes entered in the advanced registry will be tattooed in the right ear with the ranch initials of the owner, and in the left ear the registration number of the fox. At the annual meeting it was voted that the advanced registry fee be reduced to \$5.00 per fox. This will entitle the owner to the advanced registry certificate showing the scoring of the fox and its pedigree for three generations. Ordinary registration remains at \$2.00 per fox and includes certificate showing pedigree for three generations.

The association has made arrangements with the Champion Animal Food Company of Minneapolis whereby it can secure fox biscuits for its members for 6½ cents per pound. Orders for over two tons have been secured at present and these will be shipped at once. We have also secured orders for Brown Rice amounting to three tons. The rice is being sold to the members for 4½ cents per pound. By ordering through the association members are enabled to make a big saving on fox supplies. Send your orders direct to the secretary and enclose check with same.

The Muskegon Chamber of Commerce Bulletins which contain a very complete write-up of the fox industry, and the National Association Fox Show Catalogues which also contain very valuable information on the industry, are being disposed of quite rapidly. These are being sold at cost. The Chamber of Commerce bulletins are 8 cents each, and the Show Catalogues are 10 cents each. We have a few left if you want a supply.

During the month of January the Association registered 370 foxes, 44 of which were in the advanced registry. It also added 13 new members to its roll. Fox breeders are beginning to realize the necessity of having their foxes registered, and the advantage of having advanced registry certificates issued.

From the inquiries received at the office requesting information for sources of breeding stock and general information concerning the industry it would appear that a great number of new people are becoming interested in the Silver Fox business, all over the country. Those who are skeptical as to the future of the fur business may be interested in the steady advance in the price of the staple fur bearers as shown by the last three quotations received from Funston Brothers. The following are just a few examples, but they represent the general upward trend in the fur market.

	Nov. 16	Jan. 13	Feb. 3
Skunk -----	\$ 5.50	\$ 6.25	\$ 7.00
Raccoon -----	7.00	9.50	10.00
Mink -----	12.00	17.00	17.00
Muskrat -----	2.70	3.75	4.00
Wolf -----	11.00	13.00	14.50

The above figures are based on skins of the best size and quality, but the ratio is the same for the medium and poor grades.

No doubt by the time the next issue of this magazine is mailed our notes will contain some definite information concerning the next show. This may seem a trifle early to some, but there is considerable work in preparing for a show and considerable time and preparation is necessary. The officers will appreciate any suggestions that will help to make the coming show a bigger success than the last one.

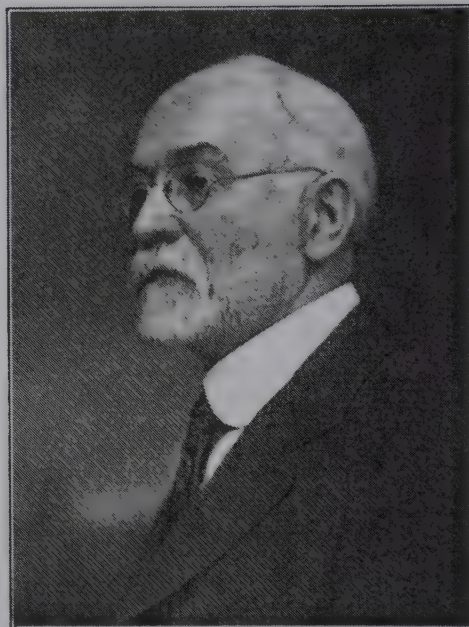
WHO'S WHO IN THE

By J. E.



J. FORD STRATTON
Allegan, Michigan

J. Ford Stratton, first vice-president of the National Silver Fox Breeders Association, has been Probate Judge for Allegan County, Michigan, for twelve years. All his life he has been a breeder of small animals and birds. Prior to the war, he had what was undoubtedly the largest pigeon plant in the State. He was also a breeder of the flying Homers and in fact has raised nearly every kind of small animal. He first became interested in the fox business about four years ago with Mr. E. E. Herman of Allegan, who has always been with him in the fox business. Last year, beginning March 1st, they have built their ranch at Allegan and now have sixty pens. This ranch is known as the Allegan County Silver Black Fox Ranch and is owned by Judge Stratton, Mr. Herman, and John E. Sandvall. The ranch is built entirely in the open and is probably one of the largest open ranches in the country. Mr. Stratton and his partners are endeavoring to produce a superior strain of high scoring foxes which will be known as the Rickmore brand of foxes. The Judge has been taking a very keen interest in the affairs of the Association and attends nearly all the Board meetings which are held the first and third Friday of each month, even though he has to come considerable distance to get here.



PETER VOLMARI
Muskegon, Michigan

Mr. Peter Volmari was born in Michigan 67 years ago. He is an optometrist and conducts a retail optical business in Muskegon, Michigan. At the solicitation of an enthusiastic neighbor, and after thorough investigation and consultation with his wife, he agreed to buy a pair of foxes for \$2,000.00. This was in 1918. These foxes proved to be a good pair for the male won second prize in 1920 and third prize in the 1921 Muskegon Show. Realizing the necessity of securing new blood, he sold several pairs of foxes and purchased new stock. As the business continued to look good he invited his son-in-law, Mr. Paul R. Hughes, to leave his Western home and join him in starting a fox ranch. Previous to that time the foxes had been boarded out. They now own one of the model ranches in the country; conveniently located near Muskegon and equipped with 38 pens which form a circle, each pen being in full view of the feed house and lookout which is located in the center. The V. & H. Ranch now owns seventeen pairs of breeders and are boarding fifteen pairs for others. Mr. Volmari was elected second vice-president at the annual meeting of the National Association held during the Fox Show in December, 1921, and is very much interested in the future of the industry and the National Association.

NATIONAL ASSOCIATION

secretary



EARL ROBERTS
Muskegon, Michigan

E. F. Roberts, Treasurer of the National Silver Fox Breeders' Association, started in the fox business in 1918 purchasing a half interest in James H. Kelly's ranch, a pioneer ranch in this section of the country. From this association was organized the co-partnership of the Wolverine Silver Black Fox Co. In 1919 Kelly and Roberts organized the Holland Silver and Black Fox Co. of Holland, Michigan, a corporation now capitalized at \$20,000.00, the fox for this corporation being supplied from the Wolverine Silver Black Fox Co. ranch. In 1920 the Kelly-Roberts, Silver Fox & Fur Co., a corporation of \$40,000.00 was organized and the fox for this company was supplied from the Wolverine Silver Black Fox Co. Kelly and Roberts own at this time the Wolverine Silver Black Fox Co., a large block of the Holland Silver and Black Fox Co., and a controlling interest in the Black Fox Co. ranch. In 1920 the Kelly-Roberts Silver Fox ranches have over forty pair of foxes breeding at this time, February, 1922. They started with three pair of foxes.

Mr. Roberts is one of the younger men in the industry but is bound to become a factor in the growth of the business.



EARL G. ORLANDER
Cadillac, Michigan

Mr. Emil G. Orlander, Cadillac, Michigan, whose photograph appears above, is one of the newly elected directors of the National Association and is a great booster for the industry. He is thirty-eight years old and is in the general merchandise business but is now giving considerable time to his fox interests. He entered the business a little over a year ago when he was made secretary and treasurer of the Cadillac Silver Black Fox Co.

Mr. Orlander is not only very much interested in the fox industry but he is also a very enthusiastic supporter of The American Fox and Fur Farmer.

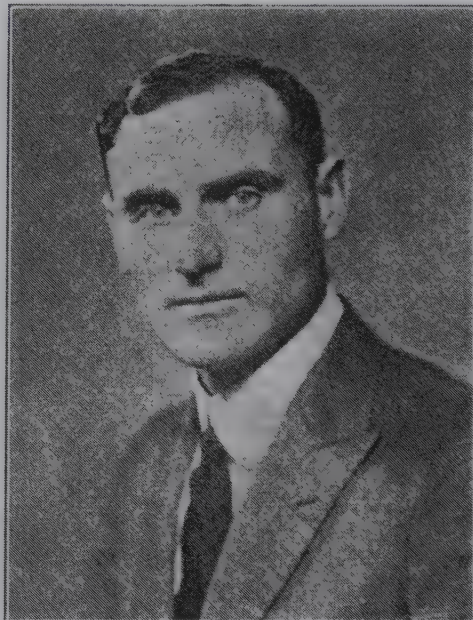
Subscribe to the American Fox and Fur Farmer—a publication really worth while—a real asset to the industry.

WHO'S WHO IN THE NATIONAL ASSOCIATION



A. L. WILLIAMS
Muskegon, Michigan

Mr. A. L. Williams, who operates what is one of the largest Silver Fox Farms in the United States, at Muskegon, is one of the most active members of the National Association, and has done a great deal to make the association the big success that it now is. Before the war, Mr. Williams was engaged in the Peppermint Oil business. He owned a number of peppermint farms throughout the country and bought oil from all who had it to sell, and shipped to all parts of the world. He was called the "Peppermint Oil King." When the war came on he gave up the Peppermint business and went into the Silver Fox business, starting with three pairs. From this small beginning he has developed a 150 pen ranch on the outskirts of Muskegon that is one of the best equipped in the country. He has great faith in the future of the industry and says the fox business is the most interesting and profitable of any he has ever been connected with. Mr. Williams is spending the winter in California.



J. S. STERLING
Lake Placid, N. Y.

Mr. J. S. Sterling needs no introduction, as he is undoubtedly one of the most prominent and best known men in the fox business to-day. He is vice president and general manager of the Alaska Silver Fox and Fur Farms, with ranches at Plattsburg, Ausable Chasm, and Lake Placid, N. Y. He has developed a strain of Alaska Foxes known as Sterling Silvers. Mr. Sterling spent a number of years in Alaska buying and selling furs and when he came back to the States he brought with him the best strains of Interior Alaskan Silvers he could obtain. He is a very active member and Director of the National Silver Fox Breeders Association and through his advice, suggestions and untiring efforts he has had considerable influence in putting the National on the map as the sound organization that it is.

Mr. Sterling is a great believer in publicity and in the future of the industry. He does not lose a chance to say a good word for the American Fox and Fur Farmer.

(Continued from Page 16)

The days of the wild cat and lynx are numbered, and the black bear, one of the least harmful and most interesting animals in the north woods, is meeting with a steady, thoughtless persecution that will spell its doom at no distant period. The red fox, resorting to its inherent cunning has managed to exist where a less clever animal would speedily vanish. Strange to say, the wolf is increasing. The timber wolf is reported plentiful in the north woods, and the brush wolf's range extends over the entire Northwest. The future of small game looks dark indeed unless energetic steps are taken immediately to reduce the wolf tribe to an economic status. If trappers would concentrate their attention on this destructive animal they would not only do much to conserve the valuable fur bearers, but would aid the sportsmen to protect game birds and animals and this wild life is listed among the most valued assets the north country has to offer.

As stated before, it is impossible to conserve even a breeding supply of fur bearing animals if we continue to open wide the doors and issue trapping licenses to every applicant regardless of the existing supply of fur bearers. Unless the trappers themselves take the necessary precautions to save breeders it will become the duty of the state through its lawmaking bodies to step in and give the most harassed fur animals some surcease from the now persistent persecution. Minnesota's fur crop is a very valuable one and Minnesotans can continue to derive a huge annual income from trapping and kindred pursuits if they but take the precaution to save annually an adequate breeding supply of fur animals.

Trappers running trap lines in good fur districts ought to co-operate with each other even to the extent of drawing up agreements not to encroach on each other and to endeavor to save breeders for the ensuing year. This has been done on certain muskrat marshes in Minnesota, and has been in practice on the famous muskrat marshes along the Atlantic Coast for years. An annual fur crop along the coast is as certain as the seasons. In fact the trapping industry there is really a form of fur farming. As time goes on and the wilderness is converted into a peaceful land of hamlets and well-tilled farms the problem of supplying furs for garments will become an important and serious one. Even now, far sighted individuals are experimenting with fur bearing animals with the hope of eventually being able to raise some of the most desirable varieties in confinement. Success has crowned their efforts with one animal, silver black foxes now being reared for their fur throughout Canada and the northern tier of the United States.

FOX RAISING SHOWS INCREASE

From "Hunter-Trader-Trapper," February, 1922

Fox farming is fast gaining favor in the United States. The industry, barely known a decade ago, is fairly common in some states of the northern tier, is represented in all states in this tier and in that next to it, and is growing rapidly. There is money in it for the raiser who starts modestly, learns the business, and then expands his holdings. There are losses in store for the tyro who starts with a big ranch, no knowledge of the business, and only a desire for quick profits. At the present time the industry is undergoing a process of stabilization. Most fox farmers raise animals for breeding purposes, and comparatively few have adjusted the business to a pelt basis. All told, there are between 10,000 and 15,000 silver foxes being grown in captivity on American fox farms at this time.

LUNGWORMS OF FOXES

By W. L. CHANDLER, PH. D.

Research Associate in Entomology, Michigan Agricultural
Experimental Station, East Lansing, Michigan

The writer has frequently observed in fox feces the eggs of a roundworm belonging to the genus capillaria. The structure and measurements of these eggs correspond with those of *Capillaria aerophilum*, a very slender hair-like worm reported as parasitic in the trachea of foxes and cats. Furthermore, post-mortem examinations of foxes voiding eggs of this character in their feces reveal the adult stage of *Capillaria aerophilum* in the wind-pipe and smaller air tubes of the animal's lungs.

Recent literature on fox parasites contains but few records of *Capillaria aerophilum* as a parasite of foxes. Reports of the occurrence of one of the intestinal roundworms (whipworms) belonging to the genus *trichuris* are, however, more common; and, since the eggs of members of this genus are very similar to the eggs of *capillaria*, it is not improbable that frequently when the eggs of *capillaria* were encountered in fox feces they were mistaken for the eggs of the whipworm. Or, if recognized as *capillaria* eggs, they were probably thought to be the eggs of a *capillaria* parasitic in the intestines of birds; their presence in fox feces being explained by the fact that the fox ingested the bird's parasites along with the bird, and the eggs, being liberated through digestive processes, were voided in the feces of the fox.

A recent microscopic examination of sixty-nine samples of feces collected from foxes in Alaska, Canada, and in six different States of the United States* revealed the presence of *capillaria* eggs in seventeen out of the sixty-nine samples examined. Also, a recent examination of twenty-seven cats, collected from widely separated areas in the country districts, showed that seven of the twenty-seven cats were infested with *Capillaria aerophilum*. From these observations it will be seen that this parasite, although recently overlooked in the fox, is a fairly common parasite of foxes and that the common house-cat is an important factor in its distribution.

Foxes fairly heavily infested with these lung parasites emit a peculiar wheezing sound when breathing, especially after running. A choking cough is also frequently observed and there may be a "running at the nose." Post-mortem examinations of moderately heavy infested animals reveal the presence of these hair-like worms in a brownish sticky exudate lining the trachea, bronchi and bronchia. The bronchia are often actually plugged up with this exudate. The exudate is filled with the eggs of the parasite and it is through the animal swallowing coughed-up portions of this exudate that the eggs enter the animal's intestines and are finally voided in its feces.

It is highly improbable that any successful medicinal treatment for this type of parasitism will ever be developed. Lungworm infestations of any description are not easy to treat medicinally. Control measures must, therefore be based on prophylaxis. Sanitation will do much to prevent the spread of the parasite. If this worm is not very common in a particular ranch it might be advisable to isolate and pelt, at the opportune season, infested animals; and, certainly in the purchase of new foxes only animals free from lungworms of any description should be considered.

*A part of this material was supplied by the U. S. Biological Survey.

Thirty Thousand Silver Foxes in Capacity

Rapid Growth of the Fur Farming Industry Shown
in Latest Statistics

From Fur Trade Review

FOX Farms in the United States and in Canada are reported by the United States Biological Survey to house approximately thirty thousand of these valuable animals. The great majority of these foxes are being studied and raised purely for breeding purposes.

While it is true that the fox ranches of Canada and the United States furnish good quantities of fine fur skins valued at anywhere from \$150 to \$800 a pelt, according to size, color and texture, etc., yet most of the foxes sold are for breeding purposes only. The entire attention of the silver fox breeder is devoted to the building up of pedigree foxes, and it is apparent that this cultivation of high-grade foxes, capable of producing progeny in which the most valuable points of the silver fox predominate, is still in the experimental stage.

This fact is more or less evident through the dissension that exists between two groups of silver fox men. One group is partial to the true silver fox as a breeder, while another group just as stoutly maintains the necessity for the all-black fox in the breeding of silver black foxes. At any rate, the silver black fox industry has made rapid strides during the past few years, more particularly in the United States, and it is certainly only a matter of a few more years until the silver fox breeding industry of the United States will surpass the original fox breeding industry of Canada, which got its start in Prince Edward Island over forty years ago.

In a recent survey of the American silver fox industry, made by the Biological Survey of the United States Department of Agriculture, it was found that there were between 10,000 and 15,000 silver foxes on the four hundred odd ranches. So successful have the breeders become in the domestication of the animals that ranch bred foxes are now being used in the building up of fox ranches in localities that were formerly considered too near civilization to be suitable for fox breeding. The extreme nervousness of the animals was such that isolation from all strange noises and objects was an absolute necessity. To some extent the ranch bred foxes appear to be less affected by the proximity of people and things than their ancestors, if one can judge by the reports and pictures of ranches recently established quite close to New York City.

In a report just issued by the Canadian Government some interesting statistics for 1920 have been compiled relative to fur farms. In that year the total number of fur farms was 587, of which 578 were fox farms, six mink, two raccoon and one karakul sheep. The value of the fur-bearing animals on these farms was put at \$4,722,905. The total number of animals amounted to 16,529, of which 13,604 were rated as silver foxes. Of blue foxes there were only three, but it is interesting to note that of mink there were 188 and of karakul sheep there were 1,100. Over 11,000 animals were born (including 9,345 silver foxes, 788 patch foxes, and 218 mink).

Of the animals that died 536 were adults and 1,282 were pups. Of those killed for their pelts 2,061 were adults and 2,261 pups (1,746 silver fox adults and 1,812 silver fox pups).

Of the animals sold 428 were adults and 1,919 were pups, totaling \$763,221 in value. Of the pelts sold 2,048 were silver foxes valued at \$373,140 (mink, 45, valued at \$735).

The first silver foxes to be raised in captivity were born forty years ago near the village of Tignish, Prince Edward Island. There are to-day 309 fox farms on the island, with a total of 9,759 foxes. It is from this island that a majority of the finest fox sires and dams have been imported into the United States. Just at this time of the year the farms are in the midst of their breeding season and the pups are born in the Spring. The foxes raise one family a year, the litter averaging about five pups, and pelts are seldom taken until the animal is eighteen months old.

FUR-BEARING ANIMALS

From Report of Chief of Bureau of Biological
Survey, 1921

For centuries fur products have been an important factor in world trade and efforts to open up new sources of supply in America were the stimulus for important exploring expeditions which increased national territorial possessions. The fur trade, which was the forerunner of agricultural and other industrial developments, has now become one of the large and important industries in the business world, providing employment for thousands of skilled and unskilled workers and contributing to the comfort of people who wear fur garments. North America has been the leading continent in the natural production of furs and is also the greatest fur consuming region in the world. Imports of undressed furs into the United States during 1920 were valued at over \$84,400,000, and of dressed furs and manufactured garments in which furs are used, at \$9,131,000. Members of the national organization of fur dressers and dyers dressed during 1920 furs valued at \$52,910,589. The revenue derived by the Federal Government from import duties on articles made of fur amounted to \$15,311,214 in 1920. Exports of furs and manufactures thereof for this period were valued at \$32,886,995. The approximate turnover in the fur industry of the United States during 1920 was \$352,000,000.

Because of the enormous drain upon the natural source of supply, the maintenance and stability of the fur business is dependent upon a far-sighted, constructive program of conservation of native fur-bearers and upon the propagation of certain kinds in captivity or under control. Within a few years in the United States and Canada a growing industry has developed in rearing silver, black, and cross foxes. In a survey made during the spring of 1921 there were reported to be 340 fox ranches in the United States having 4,350 breeding animals, their stock and equipment being valued at more than \$4,280,000. The total number of breeding foxes in the United States will be materially increased by the young of the Spring of 1921 which were not reported. Fox ranches were reported in the following States:

California, Colorado, Idaho, Illinois, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, New York, Ohio, Oregon, Pennsylvania, Virginia, Washington, Wisconsin.

A considerable number of people are also rearing skunks, raccoons, minks, muskrats, opossums, and beavers.

The bureau has continued its investigations designed to aid the development of the fur industry. These have included the study of the feeding, breeding, and management practices followed by those engaged in the business, and

laboratory and other investigations at the Experimental Fur Farm, near Keeseville, N. Y. Important progress has been made in determining feeds suitable for maintaining health, growth, and reproduction among foxes, and in obtaining data regarding the physiology of these and of other fur-bearers, such as the normal pulse and respiration rate, which are required as a basis for the detection and diagnosis of disease. Valuable information has been obtained regarding breeding periods, and the causes of mortality and the early growth and development of the young.

The most notable advance has been made in the investigation of diseases to which fur-bearers, especially foxes, are subject; the conditions of pens and surroundings favoring contraction and dissemination of such diseases, and sanitary measures essential to their prevention; also in the determination of safe and effective remedies, dosage, and methods of administration in case of disease.

Observations made indicate that the hookworm is one of the most serious parasites that fox ranchers have to contend with and that its occurrence is far more widespread than has heretofore been realized. The unexplained death of many foxes has unquestionably been due directly or indirectly to such infestation. Losses from this parasitic disease are not limited to death and impaired health of foxes but are measured also by reduced commercial value of the pelt produced and by lowered breeding capacity. There is little superficial evidence of light hookworm infestation either in appearance of health or quality of pelt. Foxes so infested, however, are a constant source of danger, for if kept in undesirable types of pens they will eventually acquire heavy infestation and be at all times a means of carrying infestation to all other pens and foxes on a ranch. This feature is brought to the serious attention of all fox ranchers and particularly those who are so fortunate as to have stock free of hookworms or are starting out with a new set of pens and foxes. With the view of bringing this feature forcefully to the attention of breeders and affording them much-needed protection, the department recently promulgated quarantine orders governing importation into the United States of animals that are or may be infested with these parasites or are affected by other communicable diseases of parasitic or bacterial origin.

Especial emphasis is placed upon the careful selection of healthy, vigorous stock having high-pelt quality combined with good fertility and dependable breeding record. That certain breeding strains will prove of higher pelt quality and be more prolific than others is evident. As in other lines of live-stock production, the largest measure of success will be attained by judicious selection of breeding stock, proper sanitation, regularity and skill in feeding, and the adoption of other good-management practices.

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Mid-Winter Meeting of American Fox Breeders Association a Success

By GEORGE BRACKET, Secretary

THE Mid-Winter meeting of the American Fox Breeders Association was a splendid success from every point of view, and every person in attendance enjoyed the session.

The meeting opened at 11 a. m. with the regular business routine. One of the subjects brought up was a request by Lieutenant F. G. Ashbrook, representing the Department of Biological Survey, for an expression of the sentiment of the Association on the questions of Tariff and Quarantine. It was voted that the Association was not in favor of having the U. S. Government recognize the Canadian Live Stock Associations in as regards admitting foxes, duty free, as under the present ruling it allows, of a low grade of animals coming into the United States duty free. On the matter of Quarantine, it was voted that all foxes imported into the United States should be quarantined by the United States Government, as was the ruling when the first quarantine act regarding foxes was passed. This will protect the foxes in the United States from contracting any disease from imported foxes.

Dr. Maurice C. Hall, B. A. I., gave a short talk on the method and working of the Department, which has charge of the laboratory work in connection with examining foxes in Quarantine.

Lieut. F. G. Ashbrook also gave a "Brief History of the Fox Industry" at the morning session. The afternoon was given over to the open meeting. After the opening address by Pres. S. F. Wadsworth, D. D. V., the following gentlemen addressed the members and their invited guests. A. H. C. Mitchell, on Publicity; Dr. Maurice C. Hall, B. A. I., Washington, D. C., on Parasites and Diseases of Foxes; Prof. W. E. Castle, Bussy Institute, Harvard College, on "How shall we mate," which he illustrated with some twenty species of rabbit pelts; J. Lewis York, Foxmoor, Rangeley, Maine, on "Pedigree and Registration;" Hon. Sir Charles Dalton, the pioneer of the live fox industry, gave an exceedingly interesting talk on how he started in the business and his experiences and system of breeding, until he finally sold his foxes for \$500,000; Lieut. F. G. Ashbrook, the "Sampson Fox;" F. C. Kaye, Editor of the Black Fox Magazine, on "Shows and Co-operative marketing of pelts;" A. F. McNally, "Local taxation of the ranch and foxes."

The meeting was also addressed by short remarks from C. L. Robins, American Fox and Fur Farmer; John A. Breen, Utica, N. Y.; Dr. C. Howard Dalton, Dr. Young, C. A. Rogers, Portland, Maine; George A. Tuttle, Vermont; Perry A. Cole, Remsen, N. Y.; Rev. John F. Brant and M. S. Thompson, who had the entire meeting in roars of laughter by his reading of several humorous articles about foxes.

Have you got your "Questions to Dealers?" We are pleased to have received so many letters saying that the recipients thought the questions were good. The Association has had them copyrighted.

We jotted down the fact Lieut. Ashbrook said that all Sampson Foxes that had been killed for experimental investigations, carried hook worms.

To the best of our knowledge, the price list of pelts of Silver and Black foxes, in the December letter, was the first price list of its kind ever put out by any Association, Fur House or Dealer.

The high price for Silver Pelts at the New York Auction Sales, February 8th, was \$600 each for two pelts. These pelts belonged to a member of the A. F. B. Association. He nearly lost his last cent by purchasing inferior foxes when he started in the business, but he learned his lesson, stuck to it, and is now getting results. There were three other members we have heard from as getting an average of better than \$285 each on their pelts.

We are pleased to write that ranchers in Oregon, Wisconsin, Minnesota, Alaska are not only registering their foxes, but joining the American Fox Breeders Association. Think it over!

WALL STREET HAS NOTHING ON MARTIN MOON

Success as Fox Breeder Reads Like Fairy Tale—From Small Beginning to Big Ranch

By BYRON WILLIAMS

Said the Fox: "You may bring me a fish and an egg!
Keep it shady,
And I will put gloss on my coat for the lady."

From *Fremont Times-Indicator*, Fremont, Michigan

TALK about the "wealth of the Incas," Martin Moon of Brunswick has made that treasure look like the proverbial 30 cents. Three years ago he sold two cottages, the savings of his young manhood, for \$3,000, borrowed an equal sum and went into the fox business. His banker railed, his wife wept, his father chided. Today he owns one of the biggest fox farms in the United States, the hotel at Brunswick, a 240-acre model stock farm, a corpulent safety deposit box, rides about in an Auburn Beauty Six limousine and "looks any darn man in the face," with a smile "that won't come off."

"Let's see," said Martin, Monday, doing a little figuring with a stub pencil, "from that \$3,000 nest-egg I have

THE FOX MENU

Egg Broth	
Eggs on the Half Shell	Scrambled Eggs
FISH	
Lake Michigan Perch	
Unpickled Herring	
Gruel Porridge	
Horse Meat a la the Red	
Prime Unroasted Beef	
Home Grown Chicken	
Toothpicks	

sold \$58,000 worth of foxes, and have three of the old pair left, marketable value over \$6,000 more!"

Reads like a fairy story, doesn't it. That's what Martin's father, Henry Moon, thought it was until Martin came across with a fat check and bought "the old home place." Then "dad" began to notice that his hat band was beginning to pinch. Here is the record:

Moon Gets Going

While working on the homestead, Martin found a little spare time to buy cream and do odd jobs. He saved his money and invested it in two cottages in Muskegon. Then he got the fox "bug" and took a "flier." Unbeknown to his wife and father, he bargained to sell the cottages, put the money in foxes and start a fox farm. When it came time to sign the deeds, his wife, dutiful but doubting, shed a tear or two and metaphorically saw the family fortunes on the rocks. "Dad" said: "Now you've gone and done it. How do you ever expect to buy the old home farm and let me get out from under the yoke?"

"You wait and see," said Martin.

"Pshaw!" said "dad"—but he waited. There wasn't anything else to do.

Buys His First Breeders

Young Moon took the \$6,000, half borrowed, and bought three pairs of silver black foxes of E. J. Peterson, a Muskegon breeder, owner of the Riverside High Point Ranch. According to the usual arrangement, the Moon foxes were left on the Peterson ranch "to pay for themselves." Nature took its course, the fox business for Martin began looking up. Last mid-summer he decided to "shoot the whole wad." Accordingly he bought twenty acres in the jack-oak and white-pine scrub on Trunk Line 24 between Fremont and Muskegon, two miles from Brunswick and in the edge of Holton. Here he expended \$10,000 for land, 14 acres of inclosed pens and a keeper's temporary quarters.

Biggest Single Shipment

Meanwhile his original foxes had increased to fifteen pairs. Last fall he brought to the new ranch fifteen remated pairs. Then he made a trip to Prince Edward Island where he purchased seventy pairs, consigning thirty pairs to buyers at Allegan, Michigan City and Cadillac. Forty pairs were added to his new ranch. This consignment of 140 foxes was the largest single shipment ever made from Prince Edward Island—and Moon was a mere infant in the game.

Prior to the sale of the thirty pairs he had sold eight pairs from his original increase. Since then he has sold thirty-eight pairs more, making a total of forty-six, not including the thirty consigned from the Island. These pairs brought \$2,000 each—except one that sold for \$2,500. Total, outside of the thirty, \$92,500.

There are now at the farm fifty-seven pairs, including some of the sold foxes that are being "ranch" for the owners. For this service the purchasers pay Mr. Moon \$110 a year per pair. And he guarantees 100 per cent increase. As a matter of fact, the increase will undoubtedly be considerably more, as the conditions at the Moon farm are ideal. The keeper, Oscar Martin, experienced fox man from the E. J. Peterson ranch, is making a splendid record and confidently expects to raise the ranch average. These fifty-seven pairs would be facing a "flat shortage" as there are but three vacant houses, were it not for the fact that "Father" Moon expects to add a number of new "apartment houses" in the spring. They will be Boreas cooled instead of steam heated.

This "Boreas" business is "chicken" for the foxes. Their chief delight is to lie on top of the out-door houses

during zero weather where the lusty north wind may blow their plutocratic hair and set the silvery tips of their thistle-down tails wig-wagging.

Sight for Sore Eyes

To see the fox colony, airing themselves thus is a pretty sight. So well have the foxes been handled that they stay perched and blink at decorous visitors who speak gently and do their talking with their mouths instead of their hands. "King," a prize winner at the late Muskegon show, had a haughty air of ennue, but "Baby," an adolescent lady of much aplomb and plumpness, deigned to rear up on her hind legs against the wire inclosure and sniff a friendly finger.

How Pens Are Built

Mr. Moon's pens are big and modern. The individual yards, completely surrounded above, below and on the four sides with fox wire (the bottom having a foot of earth over the wire), are 25x50 feet. Each pair has an above-ground house four feet square with a sloping, shed roof. The underground house is 3x7x5 feet and so constructed that the keeper, by raising a man-hole, may have easy access to the den. Each house, above and below, is equipped with a small pup box or compartment. The entrances to these houses are separate, each being a square chute of boards.

The colony increase comes in March, the average throw per female being five, which completes her maternal fecundity for the year. The average save, under the very best conditions, is four. The guaranteed ranch average is two.

His First Trophy

Hanging on the wall of the keeper's home is Mr. Moon's first prize rosette, signifying that he took one third prize at the recent Muskegon show. *The Black Fox Magazine*, published in New York, says in its Christmas number, also a special Show number:

"Moon's Fox Farm of Brunswick, Mich., had some very fine animals shown, all medium silvers. This is comparatively a new ranch but their animals are much above the average. Their foundation stock was secured from the very best Prince Edward Island strain."

On the ranch are sixteen pairs of pure Alton stock, all related to prize winners at the Montreal fox show of a year ago. One pair, especially prized by Mr. Moon, produced a progeny of five pups last spring and Mr. Martin saved the entire quintette.

What Foxes Eat

At the Moon ranch no offal is fed. Two prime beeves a week are consumed, together with chickens, eggs, fish, milk and gruels, according to the season. In a snug chicken house on the farm, 150 White Leghorn hens are "laying for the foxes," reversing the usual order of things—for according to Mr. Esop, the fox usually lays for the hen. And these industrious biddies—such a blessing they do not know it—eventually will appear, at breeding season, on the table of the foxes as chicken a la fricasee, or just chicken as the case may be. Eggs are desirable. They keep the fox in good condition as to physical well being aside from glossing the hair. Much of the egg food is mixed with gruel, broth and porridge. And—next on the program is

fish. Shipments of herring come regularly from Grand Haven and are highly regarded by the foxes. Inasmuch as they never during their life-time, have to take off their negligees, the bones do not interfere with the Moon denizens changing their clothes. We have Mr. Moon's own word for this. Here is the food scheme:

January—Horse meat, beef and eggs.

February—Beef and eggs.

March—Pupping time—Milk, gruel, two meat feeds a week.

March to June—Fish.

Sunday dinner during breeding time—live chicken.

A refrigerator and an ice house keep the food supply fresh the year around.

When the foxes are new at the ranch, they grab their grub and run for the dens, eating in privacy. Later, they deign to dine in full view of the keeper. Probably they have figured out by this time that he is well fed in the ranch house and does not covet their sustenance. The average meat feed is a pound a day for each fox, eggs as needed.

Here Is a Good One

Mr. Moon brought back with him from the Island five pairs of white cats, pink-eyed beauties, inured to foxes. If a mother fox dies or goes dry, the kittens are taken from a ma cat and the baby foxes substituted. Puss seems to love her fox babies just as much as her own, suckling them to bottle age. A litter of four foxes was raised at the ranch in this manner last year—all living.

When Skins Are Skins

"And now, Mr. Moon, what about the day when foxes must be raised for their skins alone—if such a day ever comes? The sale of breeders will fall off necessarily as the industry grows; is it possible to raise foxes at a profit for their pelts alone?"

"Absolutely," said the fox man. "At present, a rough average is \$500 for a silver-black fox pelt. This price can be cut very materially and still leave a big profit in fox growing. In Prince Edward Island, where there are approximately 300 people engaged in the business, they are making good money selling skins. In fact, some of the growers do not enter the breeders' market at all, preferring to make a simple proposition out of their business. The time, however, is a long way off when the States will have sufficient breeders. There will be big money for years in the sale of the foxes to beginners. It's a cinch."

And he believes it.

On a knoll, in comparative proximity to the fox dens, Mr. Moon is building a pretty bungalow with garage and other modern necessities, for Mr. and Mrs. Martin, the latter being his sister. They have two healthy, fine looking girls—and the "whole darned family," from cats to keeper, love foxes.

The Home Farm

Mr. Moon's home place, the stock farm, consists of 240 acres, with ample farm buildings of the modern type. The farm is equipped with silos, milking machines, Delco lighting system and other up-to-date conveniences, including the omni-present Ford. Moon's motto is: "I should worry."

But, my dear, you should see those foxes by moonlight! Night hawks, every one!

AMERICAN FOX BREEDERS ASSOCIATION MEETING

Held in Parker House, Boston, Mass., January 18, 1922
(By a Staff Correspondent)

A SHORT business session was held in the parlor of the Parker House in the forenoon, prior to the general meeting in the afternoon. This meeting was open to members, U. S. Government officials and the press. The sole purpose of this short session was to transact business pending in the American Fox Breeders Association, questions relating to the fox quarantine and the recognition of the Canadian Silver Fox Breeders Association.

F. G. Ashbrook, representing the Biological Survey of the United States Department of Agriculture, was invited to take part in the discussion, as was Dr. Maurice Hall of the Zoological Division, United States Department of Agriculture. It was requested by Mr. Ashbrook that the American Fox Breeders Association put in writing their views concerning the fox quarantine and the Canadian Silver Fox Breeders Association as discussed in the meeting, the object being to send this information to the interested officials in Washington.

Dr. Young, Superintendent of The Central New York Fur Company of Boonville, took quite an active part in the discussions and the information furnished by him was indeed most enlightening and well appreciated by those present. Mr. John Breen, general manager of the same company, also furnished some valuable suggestions.

Other prominent men in the discussion were J. Lewis York of Rangeley, Maine, George Tuttle of South Ryegate, Vermont, Mr. Thompson of Boston and George Brackett of Boston, Mass.

The business was conducted very satisfactorily under the direction of President Samuel Wadsworth of Sherborne, Mass. The meeting adjourned at 12 noon.

The general meeting was called to order at 1:30 p. m. by President Samuel F. Wadsworth, who gave an address of welcome to all and thanked them for their co-operation in attending. It was one of the best meetings that the association has ever held in the way of giving much desired information.

The President called on Mr. A. H. C. Mitchell, ex-Secretary of the Association, to speak on Publicity and the Necessity of Advertising. Mr. Mitchell spoke very intelligently on both subjects, which met with the hearty approval of all. Mr. F. G. Ashbrook was then called upon and in response read a brief history of record associations, demonstrating the advisability of one central registry association for silver black foxes, which will be found in full in this issue. This subject was by no means overlooked, and was truly appreciated by all in attendance.

Dr. Maurice Hall of the Zoological Division of the United States Department of Agriculture was next called upon. He also read an article which appears in this issue in full. This was most heartily applauded. Following him came Professor _____ of Harvard University and he gave a very interesting talk and explanation on breeding, using rabbit skins to demonstrate his points. He had in all about twelve or fifteen different kinds of rabbit skins, and all colors. This gave the breeders of foxes good food for thought relative to the fox raising.

Dr. Young, Superintendent of the Central New York

Fur Company of Boonville, N.Y., gave a very enlightening talk on general subjects, which met with hearty approval and great applause.

Mr. Charles Dalton was next to appear on the floor, and, in response, told of how he became interested in the fox industry some thirty-five years ago, he being one of two pioneers, and spoke of the wonderful achievements accomplished up to the present. He was given a great ovation. The Rev. John Fletcher Brant was next and he in turn told of how he and his brother used to hunt and how fascinating and interesting it was, and finally, after years, he was asked to purchase a pair of silver black foxes and after giving it some little consideration did so and now he is pleased with his venture and claims it is becoming more interesting each and every day. He is very optimistic relative to the future of the fox industry and wishes to be numbered among the fox men of the United States. His remarks were of sound substantial facts and were much appreciated.

Mr. Kaye of *The Black Fox Magazine* of New York City spoke on the subject of an International Live Fox Show. This subject was given considerable attention and was much appreciated.

A number of others spoke on various subjects pertaining to the fox industry. Among the principal visitors were Mrs. A. H. C. Mitchell of Sherburne, Mass., and Mrs. Clarence Waite of Marlboro, Mass. Mrs. Mitchell is not only the owner of foxes but raises them herself, so she is one woman of authority on foxdom. She is readily picked out in any crowd by her smiling countenance and pleasant and congenial manner in which she meets her friends.

The meeting was adjourned at 4:45 p. m. All went home, after receiving thanks again from the President, Dr. Wadsworth, and too much praise cannot be given to the association for the manner in which they handled this meeting, and the splendid men that they had to represent them. The information given was much needed, and all were well pleased with what they heard and learned, which was of grave importance to each and every one. Some traveled hundreds of miles to attend this meeting, and everyone expressed the opinion that they were well paid for the trip. These kind of meetings should be held by every association for the good derived therefrom.



A BRIEF HISTORY OF RECORD ASSOCIATIONS

Demonstrating the Advisability of One Central Registration Association for Silver Foxes
Read before American Fox Breeders' Association, Boston, Mass., January 18, 1922

By F. G. ASHBROOK

Bureau of Biological Survey, United States Department of Agriculture

LIVE-STOCK improvement has developed more rapidly in the United States than in any other nation in the world. Why? Because many factors—railroads, fairs, experiment stations, and central markets—have contributed to this end; but also through the instrumentality of record associations. The fact that these associations have been as instrumental as any in bringing this about is recognized so clearly that all the other allied agencies of progress are now courting the assistance of these great self-governing bodies of live-stock breeders.

Live-stock record associations have in practically all cases grown out of the efforts of breeders who have voluntarily banded themselves into organizations, into clubs, fraternal organizations, or corporations for the purpose of preserving the purity of blood of the breed in which they are interested by maintaining a correct record or register of animals.

These associations also have as one of their important purposes the promotion of the interests of a particular breed and of the breeders interested therein. The nucleus around which live-stock associations developed is found in the private records kept by leading breeders. These men had found it necessary to maintain such records in order that they might make intelligent matings in their own herds, studs or flocks. They found that they could make more rapid improvement when they knew definitely the ancestry of the animals they were mating. From this maintenance of careful private records it was but a short step to exchange of breeding animals between men who maintained accurate private records, the exchanges being accompanied by complete written statements of their breeding.

In time the animals bred by these men acquired certain characteristics which distinguished them in color, form, or function from others of the same species. They also acquired the power of transmitting these characteristics to their offspring with a high degree of certainty, and then became known as breeds.

Increasing trade led leading breeders to recognize the desirability of some central organization which could maintain complete records and furnish extended pedigrees, certified to be correct so far as the central organization could determine the facts.

Record or registration associations are not new institutions. The first one appears to have been established in the year 1800 for the purpose of maintaining records of and promoting the industry in Thoroughbred horses. Performance on the track was the test of entry. One of the most important functions of this association was to prevent "ringing," by which is meant the racing of an exceedingly fast horse seasoned in campaigns under a false name. Such performances were intended to mislead the public and cal-

culated to enable the insider to win large sums of money by fraud.

The next record association produced the English Herd Book for Shorthorns, the first volume of which was published by George Coates in 1822. He patiently plodded from farm to farm in the breeding districts of Durham and Yorkshire where the shorthorn breed had its origin, collecting records pertaining to the breeding and show yard performances of the most noted cattle of that time. He also took careful detailed descriptions of the most noted animals, and his notes comment on the color, size, conformation, feeding qualities, and handling of the most valuable animals. Although encouraged in his work by the more intelligent and successful breeders, he was rebuffed by many who should have given loyal assistance. Despite these obstacles, the work was begun and the Coates Herd Book for Shorthorns became the real forerunner of our modern record associations.

The first American associations came into existence in much the same manner. Individuals undertook the compilation and publication of the records and their work was subsequently absorbed by voluntary associations of interested breeders. Practically all American associations came into existence between 1875 and 1890 and a large proportion of these became incorporated between 1881 and 1886. Some were organized under the acts governing corporation for pecuniary profit, some on the paternal plan of clubs, and some as corporations not for profit.

The first fox-breeders association was organized in Canada, on April 24, 1915, under the name of the Silver Black Fox Breeders Association of Prince Edward Island. The American Fox Breeders Association of Boston, Massachusetts, was the next to organize, March 4, 1918. A third fox-breeders association was organized in the year 1920 under the name of the National Silver Fox Breeders Association of America, in Muskegon, Michigan. A fourth fox-breeders association was organized in Summerside, Prince Edward Island, and approved by the Canadian Minister of Agriculture, on July 22, 1920.

The primary objects and purposes of all the fox-breeders' associations are practically the same. A two-fold character was emphasized at the very beginning. The first duty was to preserve the purity of foxes, to issue pedigrees to such foxes as could present evidence of eligibility, and to maintain records of ownership through transfer records. The second function was to promote interest by demonstrating the value of growing foxes from the dollars-and-cents standpoint. Shows were organized and prizes awarded. This brought the best of pure-bred foxes prominently before the public, where their points of superiority could be studied. The work being done by the two American associations at the shows, and the advertising incident to

the exhibitions, resulted in widespread sales that would not otherwise have been made, and the stock has been greatly improved.

The fox-breeders' associations have accomplished wonderful things in the short time they have carried on their business, in spite of the fact that they are a long way from obtaining the conscientious support of fox breeders as a whole. It is not my purpose to criticize the organization of these associations. The sole purpose of this paper is to inject into the minds of the American fox breeders the necessity of combining the registration features of the two American associations under one central organization.

It was the consensus of opinion years ago among stock breeders that the more registration associations formed the better for the breed. Some time elapsed before breeders realized the fallacy of this scheme. Instead of organization being strengthened it was weakened. Funds necessary to carry on the business and promote the industry were scattered instead of concentrated. The overhead expense necessary to conduct the business increased. The growth and popularity of the breed in question dwindled. All these unprofitable conditions were brought about simply from lack of proper organization and cooperation among breeders.

Fox breeders as a whole, if they intend to make their business a real live-stock industry, should study more carefully and thoroughly the general live-stock business of the United States, particularly the organization and method of carrying on this business. There were many problems that stockmen had to solve in the beginning which are now so firmly established that it would profit foxmen if they would simply accept the teachings as established truths.

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stockmen had to solve in the beginning which are now so firmly established that it would profit foxmen if they would simply accept the teachings as established truths.

One central fox-registration association would cover the fundamentals of both of the American record associations very well indeed. It would maintain unimpaired the purity of foxes and promote impartially the breeding of all the various strains. To further these objects it would publish a herd book; collect, verify and publish in the United States and abroad information relating to the pedigrees of silver foxes; investigate and report upon doubtful cases or suspected pedigrees; arbitrate and settle disputes and questions relating to or connected with silver foxes; and correspond with societies and persons in the United States and abroad interested in or professing objects similar to those of such a fox-breeders' association. Fox breeders organized under one central body could exert a powerful influence in a campaign against scrub foxes and would be in position to obtain legislation favorable to the fox business.

The progress that has been made thus far in fox breeding is largely due to the breeders themselves, working through the fox-breeders' associations. Their work, however, has just begun, and it is destined to increase. In order that it may not increase in multiplicity of associations for the sole object of registering foxes it would be well for the breeders to get together and have a definite understanding as to plans for the future. The organization of a central registration association to register silver foxes and to promote the fox industry is entirely up to the breeders engaged in this business. The importance of having one central registration association is already quite clear to a number of fox breeders, for they have been talking and discussing it for some time. The sooner these same ideas and views are common to all the fox breeders concerned, the quicker will the fox business in the United States make vigorous and substantial progress.



THREE PRIZE WINNING PUPS

Ear Mange or Ear Canker in Animals

C. P. FITCH AND W. A. RILEY

University Farm, St. Paul, Minn.

EAR canker, or ear mange, is a troublesome and not uncommon disease of animals. It is probably most often noted in rabbits, but is also found in foxes, ferrets, cats, dogs and other species. It is highly contagious and as it is not infrequently the cause of death of the affected animals, it should be promptly dealt with when its presence is first noted. Fortunately, it is not difficult to control if it is vigorously attacked when it first becomes manifested.

Like mange, or scabies, affecting the bodies of various animals, ear canker is caused by the presence of a minute, pearly white mite barely visible to the naked eye. The exact species of mite differs somewhat with different animals, but its habits, life history and the methods of control are essentially the same.

The mite (*Psoroptes equi*) which causes canker in rabbits is the same as one which may cause mange in horses. As it can pass from horses to rabbits, or the reverse, and cause disease, affected animals should be promptly isolated.

The first indication of the presence of the mite in the ear is that the affected animal may be seen shaking its ears and scratching them vigorously with its hind feet. The animal resents handling of the ear and shows evidence of pain if the base of the ear is pressed.

The base of the ear is found to be filled with a yellowish-brown soft matter of a characteristic odor. If this be examined with a hand lens, it is found to contain many of the actively moving, whitish, eight-legged mites, about the size of a period on this printed page.

The diseased animal becomes emaciated, and if nothing is done to relieve it may lose its appetite, gradually become weaker, and finally die. Sometimes the mites penetrate to the internal ear and cause paralysis of the ear muscles or even of the neck, which is followed by death.

Treatment for ear canker in rabbits is practically the same as for the disease in other animals and will be discussed later.

The mite infesting the ear of the fox, the ferret, cat, and dog is *Otodectes cynotis*, a more dangerous species than that occurring in the rabbit. In this country it seems to be comparatively rare, except in the fox. We have seen many cases of its occurrence in the last mentioned animal.

The canal of the ear becomes lined with a chocolate colored wax which, when examined with a lens is found to be literally alive with the little, whitish mites. If a little of the wax is removed to a clean, dry vial, the mites will soon be seen actively crawling about over the glass.

These mites not only live in the outer ear, but they frequently invade the middle ear and even the inner ear. Deafness often results. Moreover the inflammation produced may extend to the brain and its coverings. Abscesses may also form at the base of the ear.

In dogs and cats the irritation of the nerves of the ear may cause convulsions simulating those of epilepsy. The animal may die in the course of one of these epileptic fits.

The effect on the ferret and the fox are very different but even more frequently serious.

At the outset in the fox, there are indications of severe

irritation and itching. The animal may shake its head violently and scratch at its ears. In the later stages, however, there are no signs of the fits or frenzy which mark the disease in the cat and dog. Instead, the animal suffers silently, in a kind of stupor, arousing occasionally to scratch its ears. Finally, it dies without exhibiting any very characteristic symptoms. In some foxes no symptoms of the disease are noted except that the animal is not doing well. If the animal be caught and the ear carefully examined, evidence of the mite will be found in the ear canal. It is important to examine ears of all animals which are not thrifty.

In such cases the ear may be almost filled with the chocolate-colored wax, full of mites. There also may be evidences of violent inflammation of the middle and the internal ear and of inflammation of the brain.

The treatment of ear canker in all of these animals is comparatively simple, provided it is recognized and its serious nature is appreciated. The first necessity is to clean the ear and its canal of all crusts, scales, debris, etc. This can be done best with a small curette after first thoroughly moistening the collected material with some solvent. One may use hydrogen peroxide, ether and alcohol equal parts, or a soapy fluid, as two per cent *liquor cresolis compositus* for this purpose. Care must be taken in this procedure not to push the debris into the inner ear. The scales, wax and other substances should be carefully removed. After the ear and its canal have been thoroughly cleaned and dried, an oily substance which contains a disinfectant should be dropped into it. This may be glycerine containing five per cent. carbolic acid or two per cent. creolin or lysol. Olive oil or paraffin oil containing the above amounts of disinfectant may also be employed. The affected ears should preferably be examined daily and a few drops of the oily preparation added. The cleaning process should not be attempted more often than twice a week. Animals which have definite disease of the brain caused by these parasites are incurable.

In case there is an outbreak of the disease, it must be remembered that it is highly contagious. The mites pass readily from one animal to another, even of a different species. Moreover, they are able to live for many days in the dens or kennels of affected animals.

For these reasons the victims should be isolated just as soon as they are recognized. In addition, the pens and dens should be thoroughly cleansed of rubbish which might harbor the mites, and should be thoroughly disinfected with a five per cent. solution of cresol soap (*Liquor cresolis compositus*). An approximate solution is made by adding a teaspoonful of "compound cresol solution" (to be obtained from the druggist) to each gallon of water. It should be applied vigorously with a brush.

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The Roosevelt Wild Life Memorial and Fur-Bearing Animals

By DR. CHARLES C. ADAMS, Director

The Roosevelt Wild Life Forest Experiment Station, The New York State College of Forestry, Syracuse, N. Y.

As a Memorial

EVERY one interested in the fur industry of this country has special reason for being interested in New York State's wild life Memorial to Theodore Roosevelt. First of all, he was the most eminent citizen that New York State ever produced, and because of his enthusiastic and practical interest in conservation and in forest wild life, including fur-bearing animals, he did more as a constructive statesman for their conservation than any other man in history. New York State has still other important reasons for her special interest in this Memorial, because New York City leads the world in the manufacture of furs and in many phases of the fur industry; and in the production of raw furs New York is also a leading state. There are thus combined both ideal, sentimental, and practical reasons for taking a special interest in this wild life Memorial to Roosevelt.

Five years ago I presented plans for the investigation of forest wild life to Roosevelt from the New York State College of Forestry at Syracuse, N. Y., Fig 1, and these met with his hearty approval and an offer of assistance in their execution. They were then formulated in detail and were making progress when we entered the War, and very naturally they were temporarily set aside. As Roosevelt died soon after the armistice, the Trustees of the College of Forestry requested of the Legislature of New York that these plans, which originated at the College and which had Roosevelt's hearty approval, be made a Memorial to him. This was done by a legislative mandate which became a law May 10, 1919. This law defines the duty of the Station as follows:

"To establish and conduct an experimental station to be known as 'Roosevelt Wild Life Forest Experiment Station,' in which there shall be maintained records of the results of the experiments and investigations made and research work accomplished; also a library of works, publications, papers and data having to do with wild life, together with means for practical illustration and demonstration which library shall, at all reasonable hours, be open to the public." (Laws of New York, chapter 536, Became a Law May 10, 1919.)

Permission to use the Roosevelt name had been received from Lieutenant-Colonel Theodore Roosevelt as follows:

"I think your ideas are excellent and I know my father would appreciate no type of memorial more than that which you suggest, as you know it was one of the subjects that was always uppermost in his mind. I give my consent without reservation for the use of his name for this memorial."

During a recent visit to the Station, Roosevelt's sister, Mrs. Corinne Roosevelt Robinson, expressed her enthusiastic approval of the Station, as she realized very fully the appropriateness of such a Memorial to her brother.

Captain Kermit Roosevelt wrote:

"I was very much pleased to learn of the foundation, as it is the sort of activity of which my father would heartily have approved, and should play an important and useful part in the study and preservation of our wild life."

Dr. George Bird Grinnell, The Nestor of American sportsman-naturalists, and a life-long friend and co-worker of Roosevelt, wrote:

"Some of us feel very deeply that in this project Mr. Roosevelt would have felt an interest far keener than in the

various monuments of which we now hear so much and which no doubt will be carried through. . . . It seems to me that there is no limit to the good that may be accomplished by it, and this appears to be the first active step in a work that will receive more and more attention in this country. . . . My long friendship with Theodore Roosevelt gives me a peculiar interest in this Station on sentimental grounds; and my life-long experience in promoting the protection of natural things on purely economic grounds justifies my faith in your work, and leads me to hope that your plea for support may be successful."

Dr. William T. Hornaday, Trustee, Permanent Wild Life Protection Fund, a life-long champion of wild life protection, writes as follows:

"I give my most cordial endorsement to the aims and purposes of the Roosevelt Wild Life Station, and I regard it as a very necessary factor in the fight for better preservation and better utilization of the wild life of the State."

These statements, by those close to Roosevelt and those who are most familiar with his wild life work, recognize the appropriateness of this Memorial.

Progress of the Wild Life Station

The law gives the Station a double function, to investigate forest wild life, Fig 2, and to build up a special wild life reference library. This should become a repository for all kinds of data, books, papers, photographs, etc., bearing on every phase of forest wild life; thus making such a library of general utility as well as of special value to the technical student.

From its inception a special effort has been made to co-operate with other departments of the State and with the Federal government and others, Fig. 3. The first important co-operative plan was made with Mr. George W. Perkins, President of the Commissioners of the Palisades Interstate Park. In this Park wild life investigations were carried on, also with the U. S. Bureau of Fisheries, and later co-operation was established with the Commissioners of the Allegany State Park in western New York. The Station has also taken an active part in assisting in the plans for the development of this as a wild life preserve, and as a fishing and hunting park, and is working on plans for the management of the wild life of this 7,000 acre Park. It is ultimately intended that this park shall contain about 65,000 acres. It is located on the Allegany River, south of Buffalo. The Station has also co-operated with the Erie County Society for the Protection of Birds, Fish, and Game and with seven other organizations of sportsmen in a fish survey of Erie County.

An investigation has been made of the beaver situation in Hamilton and Herkimer Counties in the southern part of the Adirondacks. Figs. 4 and 5. This investigation was made possible by the gift of funds from certain Trustees of the College. This study was also made in co-operation with Commissioner Ellis J. Staley of the New York State Conservation Commission. Undoubtedly the time will come when the beaver of the Adirondacks and other large forested areas of the State, will become an important source of fur to supplement that already derived from other animals in the State. Now that we are at the point of developing seriously the water powers of the State, the value of beaver for water storage is likely to be appreciated more than ever before. Any overstocked region should be reduced by transplanting beaver to other localities and by super-

vised trapping. Sportsmen and campers are interested in the relation of the beaver to trout, and some claim that the effect is injurious, but the merits of the case have not yet been carefully and impartially studied by competent field naturalists.

These co-operative studies of the Station, should now be extended to other phases of the fur problem in the State and detailed studies are needed of the muskrat, skunk, and raccoon as well as the status of "vermin," as viewed by those interested in fur as well as by the sportsmen who look upon these animals in a different light. An impartial scientific study of the "vermin" problem is thus urgently needed. We need exhaustive studies of all of the fur-bearing animals of the State, now that great tracts of forest are being set aside for State and National forests. The status of our fur-bearing animals should be studied in such a comprehensive way as to relate them to a proper system of forest management, so that we will arrive some day at a much more reasonable method for the production of fur than we have to-day. This will involve some comprehensive preserve method, such as will insure a large permanent supply of valuable furs, of such kinds as may be harmonized with the other uses of the forest; particularly with regard to fish and game. There are many conflicting problems involved in this subject but the only rational settlement of these differences and misunderstandings is by a careful impartial study of the problem so that every fair claim will receive due consideration.

The diseases and enemies of fur-bearing animals have not received the attention that their importance merits. Real progress can only be made along this line by giving technical men time, facilities, and the field experience to make successful studies and experiments on these animals. The normal physiology of fur-bearing animals has not received adequate study and this must naturally serve as a foundation for any proper study of their diseases. To provide proper food for fur-bearing animals is an important problem for investigation. That the quality of furs can be greatly improved by proper investigations of heredity, no one doubts. We need detailed studies of their natural history, their breeding habits, food and allied problems. Only a beginning has been made on this line.

Enough has been said to show the close relation of any comprehensive wild life program to these fur-bearing animals. In the original plans submitted to Roosevelt provision was made for such studies and it is hoped that the necessary facilities will be furnished to conduct this work in a fitting manner.

Although this Memorial Station is authorized by New York State, its field is not limited solely to the State, because provision is made in the law for co-operation with other State and Federal agencies and private individuals, for co-operation outside of the State when funds are made available. Through this source of co-operation, investigations have already been started in Yellowstone National Park on the natural history of the beaver, on the big game, and on the food of trout. This has been made possible by the co-operation of President Howard H. Hays of the Yellowstone Park Camps Company, from the gifts of certain friends, and by the collaboration of several competent field naturalists, who have conducted these investigations for the Roosevelt Station.

The citation of these examples shows that the Station, backed by the State of New York and with a technical staff, is already at work and is in a position to co-operate with various organizations and individuals who are interested in the investigation of the wild life problems, including fur-bearing animals of the forest, and is conducting investigations along lines of work which would have met with the approval of the great conservationist for whom the Station was named.

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You have all heard a great deal about Mr. Robert A. Pfeiffer, who acted as judge at both the 1920 and 1921 Fox Shows at Muskegon. Mr. Pfeiffer has had a great deal of experience in the handling of furs, having been in the business practically all of his life. He spends considerable time in visiting the foreign fur markets—London, Paris, and other European cities and is considered an authority in his line throughout the country. He is now connected with the firm of Taugett Schmidt & Sons, 508 Monroe Ave., Detroit, Michigan. We are sure you will all be interested in the above photograph of Mr. Pfeiffer.

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AN ANNOUNCEMENT OF IMPORTANCE

This publication is pleased to announce that Dr. C. P. Fitch, chief of the Department of Agriculture of the University of Minnesota, University Farm, St. Paul, Minn., will be glad to offer any advice that he may be able in regard to the diseases among foxes, either through the columns of this publication or directly by letter, or both. There are many times when fox ranchers of this country are in need of some advice relative to serious problems confronting them connected with the breeding and raising of foxes in captivity, and we are sure that Dr. Fitch will be very glad to promptly respond to any inquiries which may be sent to him direct or through these columns. In addition to this, Dr. Fitch will be glad to receive specimens for examination and study of diseases among foxes, in order to obtain more information. No more important subject has been brought to the attention of the fox ranchers of this country than this, and we are sure that they will take full advantage of it. Don't hesitate. Write your questions plainly and on one side of the paper only, and, if possible, typewrite them.

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The motto noted above is announced by William P. Pfeifer of Utica, N.Y., Sales Representative of The Central New York Fur Company, Inc., whose ranch is located at Boonville, in the foothills of the Adirondack Mountains. Mr. Pfeifer's advertisement will be found in another column of this publication. Mr. Pfeifer is spoken of as a man of the strictest integrity, who has the confidence of every man with whom he has ever done business. His motto, "Foxes and Service," is one that is needed in the industry today.

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American Fox and Fur Farmer

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No. 9

PUBLISHED MONTHLY, 406 ARCADE BUILDING, UTICA, N. Y.—PHONE 1778-W
 An American Publication Devoted Exclusively to the Silver Black Fox Industry and Fur Farming

C. L. ROBINS, *Manager*

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STATE ASSOCIATIONS

We are advised on very reliable authority that several States are soon to organize State Associations for fox breeders and fur farmers; in fact, the report is that New York and Minnesota have already made preliminary plans for such organizations, which will be pushed to a rapid completion. THE AMERICAN FOX AND FUR FARMER several months ago advocated the formation of State organizations in every State in the Union where fur farming could be successfully carried on. These organizations could regulate all matters affecting the industry in their own State, hold meetings several times a year, and once a year each State send delegates to a National Convention to discuss and decide upon matters affecting the industry nationally. What a wonderful influence a National Convention of this kind could wield. There is nothing they could not accomplish if once they set out to do it. We hope to hear that some live wire fur farmers in every State have taken hold of this matter. The fur farming industry merits and demands an organization of this kind. Why not start it now while the industry is in what might be termed its formative period? There are some big broad-minded men engaged in fur farming in the United States and they can be depended upon to put their shoulder to the wheel. THE AMERICAN FOX AND FUR FARMER pledges its support to an organization of this character, and we hope to be able in the very near future to chronicle the news of the organization of several State Associations. Fur farming is a big industry. Let us treat it as such. Now is the time to act. United we stand—divided we fall.

ARE YOU A SLACKER?

Are you an American breeder who is not supporting by your advertising patronage an American publication for the American fox rancher and fur farmer? If you are slacking in this respect just sit down and think it over and you will come to the conclusion that you ought to boost. This publication has come to stay. It needs your support. Don't withhold it. Give it now. It will enable the Publishers to make this publication better each month. You will get results as we are reaching hundreds of prospective fur farmers each month. Our subscription list is growing by leaps and bounds. Get into the advertising columns now; also urge your friends to subscribe.

GAME REFUGE AND PUBLIC SHOOTING GROUND BILL

This publication is pleased to lend its whole-hearted support to the passage of the Game Refuge and Public Shooting Ground Bill now before Congress. The American Game Protective Association with a backing of 5,000,000 sportsmen behind them are fighting for the passage of this bill.

Muskrat farmers would be benefitted by this legislation. It therefore behooves every Fur Farmer to write now to his Congressman and urge him to support this bill.

DESERVED CREDIT

Too much credit cannot be given the Bureau of Biological Survey of the United States Department of Agriculture for the splendid assistance they are rendering the fox ranchers and fur farmers of this country. No trouble is too great for this department to go to in answer to the call of those who seek their aid. They stand ready and willing at all times to answer any questions that they can relative to the fox industry or general fur farming. It is only fair that every fur farmer in the United States respond and show their earnest co-operation. If the department writes you for information remember that they are doing it for your benefit and the benefit of every fur farmer. Don't hang back. Respond promptly. If a questionnaire is sent you, answer it at once, so that the department may know that their effort to assist you is appreciated. The United States Government is spending money to maintain this department. Show your appreciation of it by doing your bit too.

SILVER FOXES SHOWN ON COAST

At the Royal Live Stock Show in Spokane, Washington, one of the exhibits that attracted wide attention was that of the Silver Fox Farm Corporation, on the Appleway. Their booth truly contained "royal stock" for here were seen half a dozen silver foxes. A representative was on hand to tell about the habits of the silver foxes, and incidentally about the fox industry. A number of handsome fox pelts were also shown, as well as pictures of the foxes taken in their haunts on the fox ranch.

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SOMETHING ABOUT MUSKRAT

An Interesting and Instructive Article on the Muskrat—An Animal Which Produces Much Fur—Something About Feeding

WITH the slow but sure extinction of the Muskrat the furrier's mind turns to the continuance of the supply of this fur, which is more universally used than the pelts of all other fur bearers.

Since a similar state arose in the case of the fox and was overcome by the animal's domestication, it seemed possible that the impending extermination of the muskrat might be averted by a like process.

The first problem was the acquisition of live specimens which presented several difficulties, the nocturnal habits of the muskrat prevented any study of habits other than the workings of this busy animal.

The hardy nature and loss of liberty cause a great many disappointments to the trapper, as when caught in a trap, they do not hesitate to amputate their own limbs when necessary to secure their liberty.

This amputation apparently causing no great discomfort, as numerous three-legged specimens testify.

The securing of live specimens make it compulsory to do the trapping usually in the month of March. Open water usually prevails at this time.

To trap and secure alive requires the use of spring pole sets, which the amateur can use successfully with a little practice. The following method proved the most successful with the writer:

Cut a sapling about six feet long, using wood with a tough fibre and considerable resilience; make a stake long and large enough to drive in the ground firmly. In this stake drive a nail causing the point to protrude about an inch and a half.

Then make the usual set and drive the stake some ten inches nearer the trap than the end of your chain, with the pointed end of the nail toward the deepest water.

Then push the large end of the pole into the bank until solid with the upper end bent over and placed under the point of the nail sufficient to protrude beyond the nail to permit the fastening of the trap chain.

When the Muskrat springs the trap its first move is a dive for the deep water, thereby pulling the end of the spring pole from beneath the nail and causing it to spring to an upright position drawing the trap and rat from the water and preventing the drowning of the rat, which will always occur under ordinary conditions.

I would suggest that this trapping take place when the nights are not cold as the rat will freeze if hung up in the air in very severe weather.

The pen enclosure for your Muskrats should conform as near as possible to nature. There are two types of homes used by Muskrats, the reed house and the burrow in the bank. If an artificial lake is to be used I would suggest that you invent some means of water control to prevent flooding, as their nests will be situated some eighteen to twenty-four inches above water level.

As the Muskrat is strictly vegetarian, your food problem is simple. A ration of corn or carrots is sufficient. Wild flag planted in your pens will furnish the rats with their natural food and can be readily transplanted.

As the rat is extremely migratory it will be necessary to pen with great care to prevent losses by escaping.

I would suggest the use of sixteen gauge wire fence, four feet high, surrounding your pens, with one width buried at the base, which will prevent the Muskrat from digging out.

A more expensive, but lasting arrangement, is a four-inch cement wall, starting two feet underground and extending eighteen inches above, with your wire surmounting the wall.

Under ordinary conditions your increase through propagation should be about 1000 per cent annually, as the rats have five litters yearly, varying from two in the first litter to six to ten in the following litters.

By feeding in a pen which you can arrange to your own satisfaction, you will be enabled to secure your pelts at such time as you wish by use of a collapsible ingress and closing the egress.

If feed is thrown into this pen constantly the rat becomes acquainted with the inlet and outlet and will use them with perfect freedom.

FUR CATCH HEAVY

Saranac Lake, N.Y.—Fur buyers in the Adirondacks declared the present season would be marked by the largest harvest of pelts on record, with the trappers receiving approximately \$1,500,000. Prices are 40 per cent higher than last year.

PLANNING ON A LARGE SCALE

The General Securities Exchange, with offices at 610 Whitney Bank Building, New Orleans, La., are specializing in approved black and silver fox company securities and investments. They advise us that they are specializing in only those in which they are personally interested from a financial standpoint. The two companies they are at present financing are The Northwest Black Fox Corporation of Spokane, Wash., and The Sierra Silver Fox Corporation of Reno, Nevada. The latter company is, so we are advised, capitalized at \$500,000, the ranch to be located about 15 miles from Reno, Nevada, in the foothills. About 50 acres will be purchased, on which are now suitable buildings for living house, barn, sheds, etc. Ranch to be laid out, pens built and thoroughly equipped this summer and a competent manager will be engaged—one who has acted as manager for some existing ranch. Ranch will be stocked with proven strain silver foxes this Fall, and it is expected that about 75 pairs will be purchased. The officers and directors are as follows:

H. E. Stewart, mayor of Reno, Nevada, President; John C. Durham, President of Nevada Sales Co., Reno, Nevada, Vice-president; William S. Lunsford, President of Reno Printing Co., Secretary and Treasurer; LeRoy Pike, City Attorney, Reno, Nevada, Director.

It is said to be the intention of the General Securities Exchange to open branch offices in Philadelphia and Atlantic City in the very near future.

SUKOI ISLAND FOX RANCH NOW UNDER NEW MANAGEMENT

(From "The Petersburg Weekly Report," Petersburg, Alaska)

On the first day of January of this year the Hercules Fox Co. relinquished all its interest in the fox ranch on Sukoi Islands to the Sukoi Island Fox Company, composed of Grover Cleary, Dr. A. H. Kaser and S. H. Graves, all of Juneau.

F. M. Chastek, of the Hercules Fox Company will be in this section for several weeks closing up the final details of the transfer and will then leave with Mrs. Chastek and children for Spokane where he has recently established a fox ranch with stock from the Sukoi Islands.

Mr. Chastek this week delivered five foxes to the Pillar Bay Silver Fox Company at Pillar Bay and has also become interested in the Sokolof Island farm with Neil McDonald near Wrangell. He is shipping one pair of foxes to Montana on the Spokane and stated that this will be his last shipment from the Sukoi Island ranch. C. E. Clark, formerly watchman at Washington Bay will be with Mr. McDonald on the Sokolof Island acting for Mr. Chastek.

Mr. Chastek is also interested in the Glenco, Minnesota, ranch of the Hercules Fox Company which was established a little over a year ago with stock from the Sukoi Island ranch. In a recent competition and exhibit held in Michigan, the stock from the Glenco ranch took several prizes. The following article is taken from the Glenco Enterprise:

Glenco foxes at the National Silver Fox Show held at Muskegon, Michigan, last week, elicited the admiration of hundreds of spectators and carried off the best prizes awarded.

John S. Chastek, proprietor of the Hercules Fox Farm, situated in Rich Valley township north of this city, exhibited ten animals out of his kennel of 23 Alaskan Silver Black foxes in competitive exhibition with the pick of the kennels of extensive breeders in the United States, and his animals were awarded a goodly share of the highest premiums offered.

Over 300 foxes were on exhibition at this annual show and Mr. Chastek's ten Alaskan Silver Black animals won in their class six first premiums, three second premiums and one third. He also exhibited four blue foxes and these carried off the first premium in this particular class.

Mr. Chastek naturally feels jubilant over the success of the members of his fox farm which he established here a few years ago upon returning from Alaska where he and his brother, Frank, had an extensive ranch on an island off the main land, and which his brother is still conducting.

The members of Mr. Chastek's herd vied for honors at Muskegon last week with the highest type of foxes from the ranches of long-time breeders in the U. S. whose careful breeding methods have been carried on to produce the best and most costly pelts.

The new owners of the Sukoi Island Fox Farm are all well known men. Mr. Cleary has been interested with his brother in the fox business on Strait Island for the past several years. Dr. E. H. Kaser is a well known dentist and for a number of years was interested in the transportation business out of Juneau. S. H. Graves is a clothing merchant in Juneau and has been in business there for several years.

When writing the advertisers, please mention that you saw their advertisement in the AMERICAN FOX AND FUR FARMER.



MRS. EVA GORDON
Traverse City, Mich.

Mrs. Eva Gordon, whose photograph appears above was elected to the Board of Directors of the National Association at the annual meeting December 1921. Mrs. Gordon and her husband, the late Mr. H. E. Gordon, after spending some 15 years in Alaska, trading in furs, came to Michigan in 1915, locating in Muskegon where they began raising silver foxes in captivity. This was the first fox farm in the state and it being quite a new thing in the way of live stock, was looked upon by everyone as being more or less a wildcat proposition. It did not take long, however, to prove to the doubting Thomases that it was a safe and sane business investment. After two years, enough foxes were sold to pay for the entire ranch and the initial cost of the breeding stock, which at that time was no little item, and still they were able to retain 16 pairs of foxes on the ranch.

At this time Mr. Gordon died leaving the responsibility of carrying on the work with Mrs. Gordon. After that the ranch was enlarged and more foxes were sold than ever, and since that the demand for the Gordon fox has always exceeded the supply. Every year Mrs. Gordon has visited the best ranches and selected the finest stock that could be found for new blood. Thus by careful selection the quality of the Gordon fox has improved until now they claim a strain of foxes second to none.

One year ago Mrs. Gordon disposed of her interest in Muskegon and moved to Traverse City, Michigan, going into partnership with her nephew, Mr. H. C. Gordon, and at the present time they are operating one of the largest and most up-to-date ranches in the United States. The past year has been the most successful in the entire experience.

Mrs. Gordon is more than ever enthusiastic over the possibilities of fur farming and says that she sees a great future in it for anyone who will put the same care into it that is applied in other lines of industry.



NEW MODEL MINK CAPE
Shown by Friedman & Herskovitz,
New York
(Courtesy of "Fur Trade Review")

FUR RAISING TAUGHT

H. M. Wight, Associate Professor of Zoology at the Oregon Agricultural College, Corvallis, Oregon, has supervision of the new course in fur farming being taught at that college. The course consists of information as to the method of raising skunks, silver foxes, raccoons, mink, and other animals for profit, and it is meeting with a splendid reception. Professor Wight is well known throughout the country as an expert in this line.

RABBIT FURS

By FRED H. BOHRER, Judge, Utica, N.Y.

The hides of rabbits offer an economical means of producing soft warm fur that will serve all in moderate means. It is true that rabbit furs will not wear as well as some of the stronger furs of larger animals, yet in value those used annually run into millions of dollars. It is almost entirely sold under imitation names or rather trade names.

Fur is the word generally used to indicate the covering of an animal's skin, but this covering has two distinct characters, fur and hair, the fur is the soft filaments next to the skin that forms the coat that keeps the animal warm, while longer and coarser filaments are the hair.

In commercial use a rabbit skin is used mostly for its real fur value by clipping it short. In this form when tanned and dyed black it is seal skin and appears on the market as trimming scarf, muffs, etc., and generally under the names Electric Seal, Near Seal, Coney Seal and the many other so-called seals. When it is clipped short it is found to be French Seal and Sealine.

When it is dyed gray it is known as Mole Coney and is cut into small patches to represent mole skins and makes a good imitation with good wearing qualities.

Hides tanned in natural color and condition are sold as Coney, by dyeing processes many different and fancy furs are produced. Gray makes Taupe Coney, brown dyes bring about Kolinsky Coney or Sable Coney, black brings Stone. By adding black spots to the New Zealand skins or other red hides make into Leopard Coney and by adding bars it is Tiger Coney. White skins are made to look like Ermine after being clipped. One could go on with the many different imitations, in fact any name is used except rabbit.

It is a very difficult problem for the average person to distinguish the many different furs that are sold as genuine, and nine chances out of ten the majority of the public are wearing rabbit furs under the name of something else.

The impression that most people have is that the rabbit skins have no strength, while in fact plenty are heavy enough to make uppers for shoes.

MUKDEN, CHINA, NEW FUR MARKET

Leipzig has long ceased to be a world fur market, and the constant troubles in Siberia have greatly injured the chances of buying and shipping of furs in and from the trade centres of that region. As a result, the trade in furs from the north is now largely centered in Mukden. A number of American fur houses send representatives here each season, and several American firms have established permanent branch houses. Prior to 1915 practically no shipments of furs were invoiced through this office, while now about \$2,500,000 worth annually is involved for export to the United States, principally to New York. Mukden, as stated, is merely a fur market, the furs which come from the various parts of Manchuria and Mongolia being handled by native dealers who work on a commission basis.—Commerce Reports.

BOOK REVIEWS

"Furs and Furriery" by Cyril J. Rosenberg, Lecturer for Northampton Polytechnic Institute, London, late Instructor for the Board of Education, and the London County Council. This book is primarily a practical work for the practical worker in furs, and simplicity of style has been the chief aim. It includes quite a number of diagrams which will appeal to the average fur worker, also includes many short chapters on skins. Published by Isaac Pitman & Sons, 2 W. 45th street, New York City.

AN ATTRACTIVE FOX RANCH

By F. L. WASHBURN

THE CLOVER-FRODIN Silver Black Fox Farm, about three miles from the Agricultural College and situated just outside the city limits of St. Paul, is not only one of the most attractive ranches seen by the writer, but interesting because of the generally fine character of the animals and the sanitary methods followed by the owner. This ranch covers about five acres containing a goodly amount of scrub oak, enough of these trees being left in the pens to insure shade, without in any way excluding the proper amount of sun.

There are about twenty-five pens each 60 x 15 feet, containing in the vicinity of forty fine animals this fall, all the outgrowth of two pairs of foxes purchased in September, 1918. A feature of this fox farm is the space between pens, affording means of isolating disease should it occur, and preventing foxes injuring each other by thrusting paws through netting, biting, etc. It should be stated, however, that there has never been a case of sickness on this ranch. Each pen contains two large houses, one on the surface and one below ground, equipped with nest boxes.

The pens are arranged in a circle, the said circle is not yet completed, there being room for many more pens. The circular arrangement facilitates the work of the caretaker in feeding, etc., and also helps the party in the watch tower, which is located in the center of the main inclosure, in maintaining a close scrutiny of all the pens with little effort. During the breeding season the caretaker is in the watch tower all day and notes are kept on dates of breeding. In this way a very close estimate may be made as to date of littering and the mother is fed milk-producing food just before she litters. Mr. Frodin worms the puppies first when they are about three weeks old, opening the nest box then for the first time. At this time the puppies are counted and sex determined. They are wormed again at five weeks of age, and again when they are eight weeks old, at which time they are generally weaned. Soon after they are weaned, Mr. Frodin removes them from the mother, placing them in pens holding two each. He mates them for size, coloring and relationship, avoiding as far as possible, mating two which are closely related.

As stated, this ranch is situated only one mile from the city limits, it is in a farming community and at the same time not far from the centers of the Twin Cities. Thus facilities are offered in the way of securing horse meat and other suitable material for food. Twin City Cold storage plants, at small cost, care in warm weather for all the meat intended for food which is withdrawn from time to time as occasion demands.

Mr. Frodin has compiled a calendar illustrating his method of care and feeding, month by month through the year. It is so comprehensive and has proven so effective upon this ranch that we reproduce it here, confident that it will be very helpful to fox raisers generally and especially valuable to beginners in the business.

Notes on Care and Feeding of Silver Black Foxes

SEPTEMBER

Care—Separate into pairs putting a pair in each pen. Mate for color and size and also see that foxes are unrelated. Put aside two-year-old extra males for pelting.

Scrape and clean feed pans after each meal. Best to have two sets. Give fresh water two or three times daily except when there is clean snow. Keep clean supply in pan especially at whelping time.

Food—Feed about a quarter pound as a ration to each fox, but as some are larger eaters than others, you will have to judge by how well they clean up their plates. Have separate plate or pan for each fox. Feed only what they will clean up at once. If they bury any food it shows you are giving a little too much. *Do not overfeed. Do not underfeed.* Watch bowel movements and keep them soft.



20 Below on the Clover-Frodin Ranch

Raw liver is a laxative. Cooked meat binds. Either grind or dice all meat.

Morning feeds consist of cereals, cooked, to which may be added milk and raw eggs. Cereals may include rice, oatmeal, cornmeal and ground wheat. Cereals may be cooked separately or mixed. Charcoal may be added.

Evening meals may consist of

1. Cooked horsemeat with or without vegetables such as beets and carrots. Do not feed potatoes.



Observation Tower and Section of Pens

2. Raw horsemeat ground, with stale bread.
3. Chicken feet and chicken heads, mashed. Must be perfectly fresh.
4. Large-boned fish, or minnows. Halibut and salmon trimmings.
5. Raw hog or horse liver.
6. Cooked tripe mixed with horse meat. This is a laxative. Contains pepsin and is very beneficial. Do not salt the food. Have a piece of rock salt in each pen that fox may lick if he needs salt.

OCTOBER

Care—Do not feed frozen meat. Thaw well before serving. Do not feed salt meat without soaking it well, as

salt is not very good for foxes.

Food—Feed three or four eggs weekly to the animals to be pelted. As soon as it is so cold that cereals and milk freeze, omit them and feed only meat. Discontinue cereals gradually.

NOVEMBER

Foxes start furring up. Same food as for October.

DECEMBER

Care—Give worm capsules to foxes if needed. After handling replace fox in overground house until he quiets down. Method of giving worm capsule is to catch fox in catching box, then pull him out by the nape of his neck, turning him into an upright position. The assistant should have a stout cord tied to a 60d nail. Put the nail well back in fox's mouth like a bit, then bind cord around his mouth so he can't open or shut it. Moisten capsule in your

suspicious. Caretaker should dress the same way every day and go about his work quietly.

FEBRUARY

Mating cries about February 15th. Several pairs mate. Foxes a little off their feed. Cut down on quantity of feed for a couple of weeks before and during mating.

Watch foxes as closely as possible to determine breeding dates. If actions of dog after mating are not congenial separate pair putting him in another pen. This will leave female contented with her young.

MARCH

Care—Foxes returning to normal appetite. Foxes start shedding first at nape of neck. Females grunt. Male very attentive, watchful and less greedy. Some mating as late as March 11th. Early litters may arrive.

Food—Feed a little more again, adding milk or cereal



THE FINAL TEST OF QUALITY

mouth, then drop it down his mouth back of the nail and watch his throat to see if he swallows. Use a pencil or round twig to push capsule down his throat. Give one capsule to a fox and skip a meal before worming them. We use worm capsule made by Charles Sisson of Muskegon, Michigan.

Food—Here add raw eggs and dry bread or cornbread or fox biscuit. Rice may be boiled with meat.

JANUARY

Ranch should close to visitors January first. Protect your guard fences by "No Trespassing" signs.

Pelt all extra dogs that are two years old.

Keep ranch quiet, as foxes are becoming nervous and

if weather permits. Feed whole milk diluted with water, and eggs and bread.

APRIL

Care—Foxes sleep more quietly. Last ten days of gestation of female very hungry and comes up to caretaker quite tamely. Feed her tempting foods before and after the young are born. A live hen, freshly killed rabbit, some fish or fresh day-old calf meat or calf-liver. Keep fresh water in pen. Give pups worm medicine with a medicine dropper at three weeks, again at six weeks, and capsules at eight weeks. It is not necessary to bind mouth of pups.

Food—Horsemeat is too rich for the latter part of gestation, so alternate with cheap beef, day-old calf or fish.



DONNA BARAGUA, IN NOVEMBER FUR

As soon as weather permits start feeding cereals and milk-producing feeds such as bread and milk with eggs, etc. Add limewater to milk. The day the pups come up on the ground start putting a pan of milk or sloppy cereal with milk. They learn to eat quite readily and it relieves the mother to a great extent. Finely ground meat may soon be added. They will soon take the same diet as parents. Feed milk and cereal in morning and cooked meat and bread in the evening. Pan of milk for pups. Feed fresh whole milk diluted, with water. Whole wheat bread is better than white bread.

MAY

Care—Feed early in the morning and late in the evening to avoid heat of the day.

JUNE

Care—Cut down on feed as hot weather approaches. Dip for fleas. Flea dip is made of one part of Creolin to 100 parts of water. Have the water warm and do not make solution too strong as it will torture the fox. If a fox is overcome by the heat place an ice bag on his head for an hour or more and afterward keep him in a cool shady place where he can sleep quietly a few days.

JULY

Care—Ranch may open to visitors if all pups are large enough to take care of themselves. Take them from parents and separate into pairs as early as possible, that is when eight or ten weeks old, as they are apt to scrap if there are too many in a pen.

Dip again for fleas. Disinfect houses and turn over ground in pens.

AUGUST

Care—As soon as nights are cooler gradually give more food until they are eating heartily.

FOUKE SETS DATE FOR FUR EXCHANGE AUCTION

Sale to Be Held in St. Louis April 24—Delayed by Reorganization

The first auction sale of the reorganized International Fur Exchange will be held in St. Louis on April 24, Colonel Fouke announced in New York. Originally it had been intended to hold a winter sale on March 20, but delays

incidental to the reorganization caused the abandonment of a winter sale.

When the first date had been set for the holding of a winter sale, it was thought that it would be impossible for Colonel Fouke to gather together an organization sufficient to carry on details in connection with the auction, but that if it was humanly possible he would fulfil the plans.

LONDON SKUNK FIRM; LONG STRIPES UP 10%

Special Cable Dispatch from London Bureau of Daily News Record

London, Eng.—In the presence of a throng of fur men fully as great as that which attended the sale of the Hudsons' Bay Company, C. M. Lampson & Co. were selling their skunk at prices fully equal to those of October for most grades. Long stripes showed an advance of 10 per cent. These figures are unofficial.

London was a heavy buyer of the article, which was going strong as this cable was sent off. The Moscow Fur Company, allied with the Eitingon-Schild Company, was particularly active. Dubiner and other Germans were buying. Paris was taking a good part of the finest merchandise.

Americans were entirely uninterested although present in the salesrooms among the many standees.

The best price was 31-6.

Americans were the principal buyers of baum and stone marten at sales. A good part of the collection consisted of stale goods.

Utica, N.Y., February 22, 1922.

Gentlemen:

I must congratulate you on the paper you are putting out and it is a big credit to the industry which it represents. The fox breeders and especially the American breeders, should realize that you are furthering their interest to no small degree and should willingly come forward with their advertising to maintain its present good appearance and insure a greater growth both in size and circulation.

Very truly,

FRED H. BOHRER.

MINK RAISING

By A. R. HARDING, Columbus, Ohio

THERE is only one specie of mink found in North America, though there are a number of varieties differing in size, color and quality of fur. Thus we find in Northern Maine, the Lake Superior region and New Brunswick a very small variety having fine silky fur of very dark shade; farther west and south a somewhat larger variety, paler in color, and throughout the Mississippi Valley and parts of the South, also parts of Western Canada, a very large mink is found, but quite pale, and the fur somewhat coarser than the northeastern variety.

At the recent London sales only about 20,000 mink were offered and some 42,000 in the February New York sales. If these represented the entire catch then surely the supply of wild mink is becoming very small. The splendid demand for mink in this country, from September 1921 to January 1922, meant that many thousands were used by manufacturers that did not get into the sales but even so mink are gradually becoming more scarce in nearly all mink producing sections.

So far fox and skunk are the two fur bearers that most persons have become interested in raising but when good mink pelts are bringing \$8.00 to \$10.00 and even more there is money to be made in raising for the pelts. Those now in the business are finding a ready sale for all they have to those starting in the business at double the fur value or more. Unless a large number engage in the raising of this animal there is bound to be a shortage in the supply of mink skins in the very near future.

There seems to be three methods of mink raising which are being more or less used and are about as follows:

The Natural Plan—By this plan mink are given an extensive range. The conditions under which they live differ from the natural only in that the animals are fed and sometimes nests and dens are provided. The animals remain wild and the catching is with traps.

The Colony Method—Each female and young are kept together with yard or runway to water.

The Pen System—Each mink is kept in a separate pen. This is the method so far mostly used. This plan however can be followed in various ways but perhaps a building some 20 by 30 feet, similar to a barn or granary, but with the ends and sides open to let in air, sunshine, wind, rain, snow, etc.—so as to be as near like nature as possible.

On each side of a passageway extending the long way, should be pens about $4\frac{1}{2}$ by 8 feet. Allowing 4 feet for the passageway, this would take up the 20 feet and it would allow seven pens on either side—fourteen in all. Each pen must be provided with a neat box which should be a few inches off the floor and having a crooked passage for the entrance. Water can be run through troughs at the end of the pens. The partition should be boards from floor up three or four feet, above which wire can be used. The top must be floored or wired, as mink can and will climb.

Some say that mink kept on wooden floors for any length of time are apt to suffer somewhat as ferrets from tender feet and other foot diseases. This can be remedied by placing a couple of inches of earth on the floor.

In the northern states and Canada the mating season is early in March but the raiser must be very watchful dur-

ing the latter part of February and up to about the middle of March. The male can be admitted through chutes but must be taken out at once if the two begin to quarrel. If they get along peacefully the male should be left with the female for a couple of days.

The period of gestation is 42 days and the raiser will know when the young are born by the crying from within the nest box. Their "crying" is apt to continue for several days but all is well and under no circumstances disturb them by peeping in. If your curiosity gets the better of you and the box is even slightly moved, the mother is apt to kill her young. Keep away, except to feed twice a day.

The female, when nursing young, will eat about one-fourth pound of fresh meat at each meal with what fresh milk she wants. If she does not care for milk, she may eat as much as a pound of meat a day—two meals.

It takes but little space to raise mink and it is the writer's opinion that within a very few years many will be in the business. In this connection a few extracts from *Ferret Facts and Fancies* will no doubt prove of value as I see no reason why mink cannot be raised pretty much along similar lines.

"During the spring of 1915 when I visited a ferret raiser in Northern Ohio, where 500 females and 100 males were kept in one shed which was 12 feet wide and 100 long, $4\frac{1}{2}$ feet at eaves and about 7 at comb of roof—just high enough for a man to walk through the center aisle or alley. This aisle was about $3\frac{1}{2}$ feet wide, on either side of which were 50 pens 2 by $4\frac{1}{2}$ feet. This was one of six similar barns or sheds but all ferrets were then in the one building so as to be more easily fed and cared for. Ends of these sheds were to the east and west—sides south and north. This plan of building gave sunshine to one side and row of pens, half of the day, providing of course that the sun shone. A hinged board along the outside could be raised to allow more air or ventilation during very warm weather. This board, or boards, was kept closed during cold or stormy weather."

The main ferret food is bread and milk although some make a sort of mush by grinding up whole wheat to which a little milk is added at feeding time.

In Northern Ohio there are perhaps 50,000 ferrets raised and sold each year. There are a few raisers who handle thousands yearly. This is only mentioned to show that ferret raising is profitable when the animals sell at \$3.00 or \$4.00 each and apparently costing about as much as mink to raise.

A SPEEDY RECOVERY EXPECTED

Herbert Fromm, one of the best known fox men in the United States, recently underwent an operation at the Raven Hospital at Merrill, Wisconsin, for the removal of a piece of steel from his leg, which had caused him an endless amount of suffering for a number of years and for which he formerly underwent an unsuccessful operation. Mr. Fromm was one of the first men to successfully breed silver foxes in captivity in this country. His many friends throughout the country hope that he will be speedily restored to health.

NATIONAL GAME CONFERENCE

Five Hundred Interested Men Attend the Eighth National Game Conference at the Waldorf-Astoria Hotel, New York City, December 12th and 13th—Largest Meeting of Its Kind Ever Held

ON DECEMBER 12 and 13, 1921, over five hundred interested men attended the Eighth National Game Conference which was held at the Waldorf-Astoria Hotel in New York City. The American Game Protective Association held the first National Game Conference in 1915. Eighty-two attended. Each year the meetings have grown in size until the meeting just held surpassed the hopes of the most enthusiastic members of the Association.

At the Eighth National Game Conference the attendance was composed of sportsmen, scientists, bird lovers and men charged with the enforcement of laws protecting our natural resources. These men were gathered from all sections of the United States and Canada. Washington State was represented; Maine sent her commissioner. Louisiana and New Mexico were represented both by sportsmen and the men charged by these states with the protection of their wild life. The state game commissioners from Idaho, Utah, North Dakota, Iowa, Kansas and Arkansas were present. Men from nearly all the states lying east of the Mississippi attended the conference. Forty of the forty-eight states in the Union were represented.

Each year sees more sportsmen from Canada at the meetings. The conservation officials of the different provinces are truly awake to the fact that the United States and Canada must cooperate with each other in the interests of protecting game species that cross the international border in their migrations. The men charged with the protection of fish, game and forests in the different provinces of Canada realize the importance of these conferences where gunner and officer meet on common ground and thresh out the many problems which must be solved if different game species are to be preserved.

The country is quickly awakening to the importance of protecting adequately its fish and game. Attending the conference were United States Senators, United States Congressmen and state governors—men of national prominence who attended and participated in the meetings because of their interest in the subjects under discussion.

These annual game conferences have truly become a national event. The Ninth National Game Conference will be held on the 11th and 12th of December, 1922. It is not too early now to begin making your plans to attend.

The Program

Morning and afternoon sessions were held both days. The conference was concluded by a dinner with speaking and motion pictures in the Grand Ball Room of the Waldorf-Astoria on the evening of the second day. Following is a brief summary of the different papers presented, which should prove of interest to any man interested in the outdoors and the pursuit of game which takes them there.

Reports of different committees formed at the last conference were first to be heard, including a report of the Migratory Fish Conservation Committee by Mr. Joseph P. Howe, secretary. This committee was formed to investigate the present status of both game and food fish and to create a sentiment for the preservation of species which from one cause or another show that their numbers have been reduced to a point demanding better protection.

Game Breeding

The necessity for an American game breeders' society was presented by Mr. Alexander G. MacVicar with the result that such a society was formed, the purpose being a clearing house for game breeders seeking employment and also a protection to the public seeking to employ competent men for this purpose. This society can in no way be considered a union, as the men forming it freely expressed themselves as favoring individual rather than collective bargaining.

Birds and Poison

Dr. A. K. Fisher of the United States Bureau of Biological Survey told of the effects of rodent poison on birds. Constantly reports have been received by the Association from sections of the West, contending that many birds, both game and insectivorous, have been killed by the operations of the Federal Government and the different states in placing poisoned grain in the fields in their campaign to destroy rodents harmful to agriculture.

Dr. Fisher told of many different tests where game birds had been fed on oats and barley poisoned with strychnine without affecting their health in the least. Twenty prairie chickens could eat without ill effects poison that would kill 1,641 prairie dogs. A five-ounce quail could eat with impunity enough strychnine to kill squirrels weighing at least twenty pounds.

Range of the Black Duck

Dr. John G. Phillips of Wenham, Massachusetts, presented a paper under the title of "Is the Black Duck Extending Its Range?" Many waterfowl hunters in the West are strong in their belief that the black duck, which has been considered strictly an extinct species, is rapidly extending its range westward. Data quoted by Mr. Phillips, we believe, bears out this theory. In the discussion that followed, members attending from the West told of the frequent occurrence of this bird of late years in places where formerly it was rarely met with.

Louisiana, the Game and the Gunner

Conservation Commissioner M. L. Alexander of Louisiana, told the conference of that state's action in setting aside 60,000 acres of land as a public shooting ground for the people of the state and nation. The territory is situated in the delta of the Mississippi river and is one of the greatest waterfowl areas in this country. The state, from the hunters' license fund, has erected a club-house on the property to take care of the shooters. Guides, boats and decoys are furnished all at a nominal price for those who wish them. Louisiana also controls hundreds of thousands of acres of marsh land which have been set aside as refuges, on which no hunting is permitted. The establishment of the public shooting territory certainly places her as one of the foremost states in caring for both game and gunner.

Salt Lake's Duck Disease

Under the caption of "Fighting the Duck Disease at Great Salt Lake," Mr. David H. Madsen, Fish and Game Commissioner of Utah, told the conference of the vast number of birds that perished each year from alkali poisoning in the territory adjacent to Great Salt Lake. When the

waters recede, small ponds are left. As the water evaporates from these, the percentage of alkali in the water becomes so great that the birds are made sick almost immediately after alighting in it.

Mr. Madsen stated it was estimated that 2,000,000 birds died in this section during the months of July, August and September. The only remedy is to keep the water sweet. The Public Shooting Ground—Game Refuge Bill, will provide funds to carry on such work and the sportsmen of Utah are loud in their demand that it be passed immediately.

Big Game Conservation

Mr. Otto M. Jones, Fish and Game Warden of Idaho, told the conference of the problems encountered in big game conservation and of the many difficulties that must be overcome in properly protecting big game species which still exist in Idaho in goodly numbers.

Drainage and Its Consequences

Dr. James G. Needham of Cornell University told of his personal knowledge of many cases where unwise drainage had resulted in taking away the water and marshes so necessary to fish and game and leaving nothing for the agriculturist in whose interests the project had been carried on. Dr. Needham told of the many benefits accruing from marsh land, proving conclusively that in a great many cases such areas as marshes were far more valuable to the country as a whole than they could possibly be when converted into farm land.

Game in Kansas

The fish and game warden of Kansas, Mr. Alva Clapp, told the conference of the improved conditions in his state, giving for the reasons the change in sentiment of the people and also the changes in the agricultural methods of the farmers. Formerly, the wheat farmer had every foot of his ground under cultivation, leaving no territory where the prairie chicken could nest.

Alfalfa was another great crop; quail nested in it. Because it is cut three or four times a year, it was impossible for the birds to bring off broods before the mowers passed over their nests. Of late the farmers have turned to dairying; more land is in prairie, with the result that prairie chickens are more numerous than usual. Alfalfa is being raised in the East, lessening the demand from the West and partially removing this menace.

The people of Kansas have realized that they must protect their game if they are to have game to shoot. The combined result has been that both quail and prairie chicken have showed a marked increase.

Bird Banding

Much valuable information is to be gained by the banding of waterfowl. Birds are trapped and an aluminum band placed on the leg and then released. On each band is a number with the request that whoever kills the bird notify the Department of Agriculture where it was taken. Mr. Frederick C. Lincoln, having charge of this work for the United States Bureau of Biological Survey, told the conference of the information gained from bird banding. It is hoped that in time the migratory lines of flight of different species of birds will be established to a certainty. Already much valuable information has been gained. It has been shown conclusively that birds not only migrate north and south, but travel great distances east and west.

Trees and Wild Life

Hon. Martin L. Davey, former Congressman from Ohio, addressed the conference on the vital relation of trees to wild life and human life. Mr. Davey made a most favorable

impression upon his audience and convinced those who heard him that trees are essential to all forms of life. Without our forests and cover we cannot expect to have game or fish. Everything that man or lower forms of animal life eat as food is directly dependent upon the leaf.

Black Bear as Game

Many states do not place any protection upon the black bear. Pennsylvania, however, considers him as one of her most valuable game species. Mr. Seth E. Gordon, secretary of the Pennsylvania Board of Game Commissioners, told of his state's action from time to time in passing legislation to protect the bear.

The objection advanced in most states that the bear is dangerous to human life; that he keeps tourists and campers out of the mountains; that he is harmful to other game species, were all refuted by Mr. Gordon who said there has never been an authentic case in the State of Pennsylvania where a bear had attacked a man unless wounded, or a female bear with cubs and then only when cornered, or a captured bear cries loudly for aid. Mr. Gordon proved with figures that other game increased in sections where bear were the most plentiful. He contended that the bears of Pennsylvania attract tourists instead of driving them away. Mr. Gordon made a strong plea for the protection of the black bear.

Wyoming's Game Problem

Governor Robert D. Carey of Wyoming addressed the conference, telling them of the problems with which Wyoming must contend in protecting her big game species. On this state rests much of the burden of protecting the big game which is driven from Yellowstone Park during severe winter weather. Governor Carey assured the conference that Wyoming was doing her best to give the elk the protection they deserve.

The Landowner and the Game

Mr. William C. Adams, Director of Fisheries and Game of Massachusetts, handled the subject of the landowner, the gunner and the game in a very able manner, pointing out the fact that the landowner is nine times out of ten a very decent chap and the sportsman has only to meet him half way to be accorded a hearty welcome.

Mr. Adams' article mentioned many ways in which the gunner could show the farmer that he appreciated the privilege of hunting over his land. It behooves the better class of sportsmen to help the farmer control the rowdy element who break down fences, disturb stock and otherwise incur the wrath of the man who owns the land and whose friendship you must keep if you wish to hunt.

The Public Shooting Ground—Game Refuge Bill

The subject matter of the Public Shooting Ground—Game Refuge Bill was briefly gone into by the editor of this department. Questions were asked by those attending the conference and answered by the speaker. A resolution was unanimously passed, favoring this legislation and carrying a clause that a copy of it be sent to every member of Congress, as follows:

RESOLVED. That the National Game Conference of the American Game Protective Association, attended by sportsmen, conservationists, bird lovers from every section of the United States and officials charged with the administration of game and bird laws of the Federal and the several state governments, heartily endorses S. 1452 and H. R. 5823 providing for establishing shooting grounds for the public and establishing game refuges and breeding grounds for protecting migratory birds and requiring a Federal license to hunt

them, and recommends that these bills be amended by adding to Section 3 thereof the following provision:

Provided that nothing in this Act shall be construed to prevent the several states from enacting and enforcing laws requiring persons to obtain state licenses to hunt migratory game birds and other game;

RESOLVED FURTHER, That a copy of this resolution be furnished the Secretary of Agriculture, the Secretary of the Interior, the Chairman of the Committee on Public Lands in the Senate, the Chairman of the Committee on Agriculture in the House, and each of the other members of the Congress of the United States.

It is our belief and hope that before this issue goes to print the bill will have passed the United States Senate. At present it is before that body for action. The bill will probably also soon be brought up for a vote in the House, and it behooves every American sportsman to write and get his friends to write to representatives in Congress, demanding that this Bill be enacted into law.

Motion Pictures

The afternoon of the second day Mr. William B. Coleman, superintendent of the Virginia State Game Farm, showed the state's motion pictures which explain how Virginia raises bob-whites. These pictures were received with enthusiasm by Bob White's friends among the sportsmen. Field and Stream's latest waterfowl picture and a motion picture of Canadian wild life, with Rex Beach hunting and fishing, were shown and also a remarkable film taken by Mr. John M. Holzworth of Portchester, New York, entitled "Shooting Idaho's Canyons and Goats with a Camera."

The Dinner

Mr. William B. Boulton, chairman of the conference, introduced Senator Harry S. New, the principal speaker at the dinner, by reading a letter he had received from a mutual friend:

"Harry New is a mighty hunter. Belongs to a shooting club in Michigan. Has hunted big game in the West. As a boy he used to fish and hunt in Indianapolis up beyond Broad Ripple. One of the best fellows in the world. His father owned a newspaper and Harry became a reporter at an early age. He was good at it. He was captain in the Spanish-American War. During the greatest war he flew aeroplanes whenever he got a chance. He has always been 'Harry' and so remains in spite of the senatorship."

Over five hundred sportsmen gathered from every section of the United States and Canada, listened to Senator New tell of conditions as he knew them when a boy, of conditions as he has watched them change, and of his reasons why he introduced the Public Shooting Ground—Game Refuge Bill.

The Senator told of lakes on which he had shot in years past that were now valueless from the sportsmen's standpoint, as well as from an agricultural view, because unwisely they had been drained, ruining them for their original value and leaving nothing in its stead. Senator New concluded his talk by saying that while he hoped the Public Shooting Ground—Game Refuge Bill would pass in the very near future, he was in the fight to the finish.

Mr. John B. Burnham told the conference of his trip into northeastern Siberia, from which country he recently returned, bringing with him a new species of mountain sheep. Mr. Burnham had some very unusual and interesting experiences in that country and showed pictures illustrating his talk that were of much interest to the diners.

Will Rogers, the world's most clever monologist, gave an entertainment lasting ten or fifteen minutes, which kept everyone convulsed with laughter during that time.

Mr. Carl J. Lomen of Nome, Alaska, showed his latest reindeer pictures and explained the methods of ranching reindeer for profit. Field and Stream's latest quail pictures and a motion picture showing William Ziegler, Jr.'s field trial winners, together with wild life pictures of the Canadian Northwest, concluded the dinner.



"WHAT EVERY WOMAN KNOWS"

Mole Wrap lined with Molly O Moire.

Shown by S. J. Manne & Sons at the
H. R. Mallinson & Co., Inc., fashion show

Worn by Miss Dorothy Young

(Courtesy of "Fur Trade Review")

THE SIERRA SILVER FOX CORPORATION

City Hall, Reno, Nevada

The above company has been formed under the laws of Nevada by leading business men of Reno, Nevada, with a capital of \$500,000, divided into 1,000,000 shares of the par value of 50 cents each.

The officers and directors are:

H. E. Stewart, President, Mayor of Reno.

John C. Durham, Vice-president, President Nevada Sales Co., Reno.

William S. Lunsford, Secretary-Treasurer, President Reno Printing Co., Reno.

LeRoy F. Pike, Director, City Attorney, Reno.

The object of the company is the breeding of silver foxes, and the ranch will be established during the summer and located in the foothills about fifteen miles from Reno. An option is being secured on some fifty acres, on which a ranch house and other buildings are now built. A competent man will be engaged, one thoroughly conversant and familiar with the business, through the Burr-Kaye Fox Ranch, who have undertaken to find the company an expert manager, and from which ranch a large part of the Sierra Silver Fox Company's breeding stock will be purchased. Other foxes will be procured from B. Graham Rogers, of Prince Edward Island, Canada, acknowledged to be one of the leading silver fox men in the business.

Altogether, the company contemplates purchasing some seventy-five pair of the best strain of silver foxes through the above channels and have its ranch ready for the installment of its breeding stock about September 1st. The company will procure about forty pair of foxes that have had one litter and thirty-five pair of this year's pups, which will breed in the spring. From the above number of pairs the company should have some three hundred pups, and with this increase have in its pens next year, allowing for all contingencies, 200 pair, which should give the company not less than 400 pair the second year. Valued at \$2,000 per pair (the present market price of proven strain silver foxes), the company's breeding stock would have a cash value of some \$800,000. The third year the company could not only largely increase its ranch, but pay a dividend of over 100 per cent; as, figured at four pups to the litter (the average), the company would have 1,600 pups, having a market value for breeding purposes of \$1,600,000.

There is such a growing demand for silver fox breeding stock in all parts of the world that practically very few ranches are marketing pelts. Figuring the pelt value of 1,600 foxes at only \$500 each, the company's returns would be the third year \$800,000, and still leave its breeding stock of 400 pair, valued at another \$800,000.

What other business today can compare with this industry for increase of value in capital and large and steady dividends?

The climatic conditions at Reno are considered perfect for the raising of silver foxes, relative to which the following letter will be of interest:

United States Department of Agriculture,
Bureau of Biological Survey.

Reno, Nev., February 13, 1922.

General Securities Exchange

610 Whitney Bldg.

New Orleans, La.

Gentlemen:—Your request for information regarding climatic conditions in this district for fox farming received, and will advise you in my estimation that anywhere along the foothills on the east side of the Sierra Nevada Mountains would make an ideal location for fox farming.

The winters are reasonably long and cold enough to produce good fur. The wild animals, bobcats, coyotes and foxes, fur up exceptionally heavy in this climate.

Yours very truly,

(Signed) E. R. SANS,

Biological Assistant.

The opportunity offered the investing public to participate in the large profits earned in this new industry is one that should be taken advantage of while the opportunity presents, and the stock of the company is an investment well worthy of serious consideration. The officers and directors, as above stated, are men of the highest standing, and shareholders are assured of a competent and business management, as the following letters of indorsement clearly show:

State of Nevada, Office of State Treasurer.

Carson City, February 14, 1922.

Mr. C. D. Woodward,

Pres. General Securities Exchange,

610 Whitney Bldg.,

New Orleans, La.

Dear Sir:—I have noted with interest the fact that you have taken active steps for the establishment of a large silver fox ranch adjacent to Reno, under the control of the Sierra Silver Fox Corporation, and I take this means of expressing to you my appreciation of your enterprise and of the benefit such an industry promises to the State. If you can demonstrate profitable possibilities in this industry as located in Nevada, as I am convinced you can, the effect will be to add another to the attractions Nevada offers to capital for investment.

I am acquainted with all the members of the board of the new company, and if the success of the business is dependent in any way on the integrity, ability and standing of these officers, it seems assured.

Wishing you all success and extending to you and your associates a hearty Nevada welcome, I am,

Very truly yours,

(Signed) ED MALLEY,

State Treasurer.

Maurice J. Sullivan, Lieutenant-Governor, State of Nevada

Lieutenant-Governor's Office

Carson City, Nev., February 14, 1922.

Mr. D. C. Woodward,

Pres. General Securities Exchange,

610 Whitney Bldg.,

New Orleans, La.

My Dear Mr. Woodward:—I am pleased to state that I know all the directors of the Sierra Silver Foxes Corporation, incorporated under the laws of the State of Nevada, and am free to say that they are Nevada's leading business men.

I believe that the Silver Fox breeding industry will be a great success in this State, and I have seen fit to become a stockholder.

Respectfully,

(Signed) MAURICE J. SULLIVAN,

Lieutenant-Governor.

Office of George Brodigan, Secretary of State

State of Nevada, Department of State

Carson City, Nev., February 7, 1922.

C. D. Woodward,

President General Securities Exchange,

610 Whitney Building,

New Orleans, Louisiana.

Dear Sir:—It gives me great pleasure to welcome and indorse the silver fox breeding industry to the State of

Nevada, as evidenced by the Sierra Silver Fox Corporation, organized by Reno, Nev., business men and incorporated here to-day.

The men comprising the board of the company are of the highest standing, assuring in every way a successful and competent management.

Very truly yours,

(Signed) GEORGE BRODIGAN,
Secretary of State.

(Seal)

Your application for shares in the above company at 50 cents per share is solicited, which must be made to GENERAL SECURITIES EXCHANGE, 610 Whitney Building, New Orleans, Louisiana.—adv.

HONEST ADVERTISING SLOGAN OF FUR MEN

Three Big Trade Bodies Join To End Misrepresentation by Small Minority—Misleading Names Barred—Vigilantes Will Insist Dealers Call Rabbit and Cat by True Titles

Representative members of New York's fur trade have begun a campaign to eliminate misrepresentation in advertising. They say that this misrepresentation is practiced by less than 5 per cent of the dealers. Three organizations, composing the Board of Trade of the Fur Industry of New York, are co-operating in the movement. These are the Fur Merchants' Association, composed of the traders, who buy the raw skins from trappers or exporters in other countries; the Fur Dressers and Fur Dyers' Association, Inc., and the Associated Fur Manufacturers, Inc., whose members make up the dressed and dyed skins.

Misleading advertising reflects on the whole industry, and the board, in a statement just issued, has offered its co-operation to end the evil. Charles G. Porter, chairman of the board, in asking for constructive suggestions, proposed that stress be laid on the accurate naming of furs or insistence that "an accurate description be given if a trade name is used."

The habit of designating furs by misleading names is frowned upon by the better element in the industry, according to Richard Otto of the Fur Merchants' Association.

"The members of our association," said Mr. Otto, "buy direct from the trappers or hunters and import from fur countries. After we have got the furs together they are sold, either raw or dressed or dyed. Furs which are worn in their natural color, like mink, are simply dressed; others are dyed, as muskrat.

Business Growing Fast

"The fur dressing and dyeing business has increased enormously since the war. Before the war certain furs were successfully dyed only abroad. Now not only have dyes been greatly improved, but systems and methods of dyeing perfected, and we can do better here than the Germans.

"We have rules and regulations in the fur trade," continued Mr. Otto. "No furs are supposed to be misnamed. Take Hudson seal, for instance. That is the trade name for dyed muskrat. While that fact is very well known, the average retailer is careful to put dyed muskrat in parenthesis after the trade name in his advertisements. Rabbit in French is called coney. The dyes here today can do wonders with rabbit. They can make it look like nineteen different kinds of fur, among them seal, nutria and ermine. It is all a matter of dressing, bleaching and dyeing.

"But no reputable retail store will sell this coney under any other name than coney. But there are a few unscrupu-

lous people who will misrepresent. We propose to convince this unscrupulous few that it doesn't pay to misrepresent furs. We want to run them out of the fur business. Misleading statements in advertisements have been suppressed in many cases through our efforts.

"The Associated Fur Manufacturers, Inc., will expel any member of the organization proved to have misrepresented his furs in advertising, stating that a fur was one thing when it was another."

To Keep Faith With Public

"As far as the fur trade today is concerned, not 5 per cent of the retail stores will try to misrepresent furs," said Mr. Otto. "Furs are bought on faith. Only the expert fur man can in every case decide the quality of the skins passing through his hands. This confidence must be maintained at any cost. The entire fur trade is interested in keeping faith with the buying public.

"We used in the City of New York alone last year 150 million dollars' worth of raw furs. To get the actual amount of business done, it is necessary to add to that amount the cost of dyeing and dressing and of making up. The 150 millions represent the raw skins alone handled by the Fur Merchants' Association. Silk linings make up no mean item and must be added to find the real total of what the consumer in the City of New York pays for manufactured furs."

Mr. Otto was asked about an item of 10,500 house cats in a recent announcement listing lots of skins to be put up in a fur auction sale.

"House cats," was the reply, "are only for the cheapest trade. While I admit that one never sees any fur advertised as house cat, it is never called anything else. It is just called 'fur.' Practically nothing is made of those skins excepting little neck pieces and muffs for children, or perhaps it may be used for the trimming of cheaper garments. Such skins are very poor and do not wear."

"Baffin Seal" and Manchurian Wolf," two names cited by the National Vigilance Committee of the Associated Advertising Clubs as having been applied to rabbit skins and Chinese dog skins, are not admitted to be recognized fur trade names.

HOLED A SILVER FOX

More Than \$500 Reward for a Persistent Man With a Spade

Persistence and a garden spade at Thedford, Ontario, filled the game bag for W. Herrington after his trusty shotgun had failed him. While hunting cottontails, Mr. Herrington discovered fox tracks and about dusk came across the animal. He fired, but succeeded only in wounding him. The fox got away in the darkness. Next day, Mr. Herrington returned and again traced the animal, this time running him to earth in a hole. He blocked the entrance and returned a second time armed with a spade. He dug the quarry out and discovered that it was not a red fox, but a silver gray. He got more than \$500 for the pelt.

Stratton, Me., March 12, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:

You are certainly keeping your magazine on the upslant.

Yours very truly,
GRANT FULLER.



"EVER FLUTTERING"

Ermine Wrap lined with Butterfly Taffeta. Flowers of Indestructible Chiffon Voile. Shown by Willard H. George of Los Angeles at the H. R. Mallinson & Co., Inc., fashion show. Worn by Miss Mary Nash of "Captain Applejack."

(Courtesy of "Fur Trade Review")

THE FUR TRADE AND FUR SUPPLY

By F. G. ASHBROOK

Bureau of Biological Survey, U. S. Department of Agriculture.

(From "Journal of Mammalogy," February, 1922)

PRIOR to the World War the international fur trade was handled in Great Britain and Germany. A considerable part of the American furs was shipped abroad and American buyers went to London and Leipzig to procure these furs among others gathered from all parts of the world. At the outbreak of the war importations of furs were reduced to a minimum, and American firms as well as foreign branch houses started dealing in the American product. The effect of the war on the fur trade was, therefore, revolutionary and commercially worked to the advantage of the United States.

Prior to the war, also, auction sales of furs had been held in London, but owing to difficulty in transportation as a result of the war, these sales began to be held in this country. Conditions have actually been reversed, and now not only does the American trade purchase American furs in American markets, but foreign dealers ship considerable portions of their annual collections to the American auction sales, and foreign buyers travel to the United States to purchase their supplies.

The fur auction sales held in St. Louis and New York City are of great importance to the American fur trade. The first St. Louis sale, held in 1915, amounted to considerable less than \$1,000,000, whereas the 1919 winter sale returned \$7,924,330, and the sale held in the winter season of 1921 netted on a declining market \$11,000,000. The first New York sale, in 1916, returned about a quarter of a million dollars, while the winter sale of 1919 totaled \$6,000,000; the winter sale of 1921 on a low market netted \$2,000,000. These figures give an idea of the tremendous offerings at these sales.

Fur Trade Statistics

While statistics are wearisome and are generally taken with mental reservation, yet they serve in helping one form an opinion of the proposition in question. Statistics compiled by the United States Bureau of Foreign and Domestic Commerce show that imports of furs and undressed fur skins during the calendar year 1920 were valued at \$84,427,592 as compared with \$69,289,909 in 1919 and \$32,158,939 in 1918. The value of imports for the calendar year 1920 shows an increase of approximately 22 per cent. Imports of dressed furs and manufactures of all kinds for the calendar year 1920 aggregated \$9,131,348 as compared with \$7,472,336 in 1919 and \$2,491,278 in 1918. The increase for the calendar year 1920 amounted to approximately 22 per cent, or about the same as for the imports of raw furs.

Exports and manufactures of domestic furs for the calendar year 1920 were valued at \$32,886,995 as compared with \$23,788,599 in 1919 and \$11,374,174 in 1918.

The Fur Dressers' and Fur Dyers' Association dressed, during the year 1918, \$35,212,230.28 worth of skins; in 1919, \$51,366,253.14 worth; and in 1920, \$52,910,589.43 worth.

The Board of Trade of the Fur Industry of the United States estimates the annual turn-over in the fur business for the year 1918 at \$232,748,201.86; for 1919, \$342,441,687.60; and for 1920, \$352,605,927.18. It is interesting to note here that the revenue accruing to the Federal Govern-

ment from articles made of fur during 1920, on which there is a ten per cent revenue tax, amounted to \$15,311,214.24.

The statistics which have just been enumerated furnish a fair estimate of the volume of the fur industry in the United States. It will be understood, however, that these figures are not immune to criticism; yet they are as correct a representation of the financial phase of the fur industry as it is possible to obtain under existing conditions.

Development of the Fur Trade

The modern fur trade has developed in the past twenty-five years from a neglected, unimportant industry into one of the largest and most important in existence. The United States has grown to the largest fur market and fur-consuming country in the world. The fur industry employs many thousands of men and women who make their living from furs and in turn contribute to the comfort of a great number of people.

An industry, the finished product of which is so much in demand, scarcely needs any further argument for permanent existence. Large industries always have important problems to meet and solve and the fur business is by no means an exception. During the past year the fur trade has been confronted with a number of very important issues. It has been demonstrated that the American fur supply can not be controlled by any single interest, that wild speculation meets with disaster, and that unhealthy competition has no place in the fur business. An all-important question still remaining unanswered concerns the future of the fur supply.

Problems to be Solved

If the fur industry is to progress along safe and sane lines, the source of supply should be more definitely assured. This is indeed a very difficult problem, but not impossible of solution; while it is mainly an economic problem, it cannot be solved by the trade alone. Neither will the utterances of radical conservationists of wild life assist very greatly in solving the problem. Conservationists of this class generally have a few pet fur-bearers in mind and are prejudiced regarding the others. They are satisfied with saying that the future of the fur trade rests entirely with those engaged in the industry. It is foolish to believe that a business of such proportions as the fur industry is not interested in conserving the source of the raw product. A number of raw-fur concerns have been for some time talking conservation and correct legislation for the protection of the fur-bearers. Practically all believe that an educational campaign is the only means of bringing results. Some raw-fur dealers have argued the question before their state legislatures only to have their propositions defeated. Others have sent literature to farmers and trappers in various sections of the United States, with a view of educating them to protect and conserve the fur-bearing animals.

The Federal Government, state legislatures, agricultural colleges, and societies interested in the preservation of fur-bearers should all lend assistance along practical lines in bringing together the interested parties to solve the problems regarding the source of supply. Intelligent work and

co-operation of everyone concerned is necessary to retain permanently all species of fur-bearers and not to jeopardize the fur industry.

Legislation

Adequate laws for the protection of fur-bearing animals are indeed very necessary and helpful; but the majority of those now on the statute books do not prevent the decrease of animals in certain sections of our country, neither do they prevent the taking of young animals and unprime pelts, which are practically valueless to the fur trade. Approximately 45 to 55 per cent of the pelts coming to the markets fall into the unprofitable class. Furs of superior quality and more of it would come to the raw fur markets if open seasons were made uniform for states where similar climatic conditions prevail.

Every state should require trappers to take out a trapping license, and in addition every trapper should be bound to turn in to the game warden under oath a report of his catch for the season. The renewal of a permit should be withheld until such report is made. With legitimate trapping under wise laws, the fur supply of our country will not be materially affected.

Areas in which fur-bearers have become depleted should be closed completely for a period of years and, so far as may be consistent with the interests of game birds and animals, these regions should be re-stocked. The national forests furnish excellent breeding grounds where fur-bearers can reproduce unmolested, and stock from these breeding grounds could well supply depleted areas. In re-stocking there is always the possibility that the fur-bearers will become pests to the neighboring landowners. This can be overcome, however, if the number of breeding animals is kept constant by proper trapping each season, or oftener if necessary.

There should be co-operation between the Federal and State Governments and the fur trade in framing suitable laws, which are very necessary to place the fur-bearing animals and the fur industry on a sound basis.

Need for Education

Lack of information on the part of farmers, trappers, and legislators is mainly responsible for inadequate laws pertaining to fur-bearers. Many persons do not know that fur-bearing animals are a great asset to a state, and have no idea concerning the annual income derived from pelts produced in their particular state.

Two years ago the raw-fur dealers of the State of New York employed counsel and went to considerable expense to defeat legislation authorizing the hunting of raccoons beginning October 1 instead of November 15. They were unsuccessful and now the hunting of raccoons is authorized in New York to begin on October 1. Raccoon skins taken during October are practically valueless, and a useless waste of fur is the result of trapping under this legislation.

In order to bring about suitable legislation it seems very necessary to launch an educational campaign through state institutions and state societies to cover the entire country. The Biological Survey of the United States Department of Agriculture is in a position to direct such a campaign for the reason that it is deeply interested in the practical conservation of fur-bearers and in the future of the fur industry.

If laws such as are herein suggested were passed in the various states, the fur-bearing animals would be conserved on a sane basis. Proper legislation would do more than this—it would for the first time give us an approximate number of the various pelts trapped annually in the different states. The importance of such statistics can not be

overestimated. We would then have a firmer foundation on which to base arguments for or against conservation of certain species. The tremendous offerings by the fur auction sales companies in the United States cannot be considered an index of the animals trapped yearly in this country. Muskrat skins to the number of 1,144,016 offered at a single auction make indeed a tremendous figure, but this does not tell the whole story. The chances are that this offering consisted of more than one season's catch. When pelts are received at the raw-fur houses they enter into the trade, pass from hand to hand, and undergo a change so complete that their identity is practically lost. It is, therefore, impossible to distinguish with any degree of certainty between muskrats, minks, or foxes originating in the United States and those originating in Canada or any other country.

Rearing Fur-Bearers in Captivity

The breeding of fur-bearing animals in captivity and the stocking of the national forests and game preserves are enterprises that should be encouraged. The production of foxes, skunks, beavers, and muskrats has proved successful when intelligently managed. The reason this phase of the fur industry has not met with greater success is because there has been too much publicity concerning financial returns and too few warnings to ranchers of pitfalls and obstacles to be overcome.

Inferior animals, temperament, feeding and breeding problems, sanitation, diseases, and parasites all raise questions to be faced by the average stockman and farmer. Every person engaged in the rearing of fur-bearing animals will meet these same problems sooner or later, and success in the business depends largely on just how completely they are solved. A rancher must further consider that he is handling wild animals in captivity and not domesticated stock in the ordinary sense of the term. It is very true that fur-bearers born in captivity are more docile than those from the wild, but they are not in the strict sense of the word fully domesticated.

A knowledge of pelts, pelt values, and market requirements is an additional requisite a fur farmer should possess in order to operate his business intelligently. His harvest is pelts, and he should be well informed as to primeness and quality of fur as well as to market requirements.

A number of raw-fur buyers claim that fur produced on ranches is not popular with the fur trade because it is unprime and lacks the quality and finish of wild fur. This is absolutely untrue, for practically all the silver fox pelts on the market are taken from ranch-bred stock.

The Biological Survey is endeavoring to keep an up-to-date list of persons engaged in rearing fur-bearing animals, in order to be in close touch with the business. It may be interesting to learn that its records show at present 500 breeders engaged in rearing one or more species of fur-bearing animals. The list is as follows: Silver foxes, 265; red and cross foxes, 74; blue foxes, 1; skunks, 81; raccoons, 24; mink, 20; muskrats, 10; opossums, 9; martens, 7; squirrels, 3; beavers, 2; fishers, 2; Russian ermines, 1; and badgers, 1. Although this list for the United States is not complete, it gives a fair idea of what is being accomplished.

The rearing of fur-bearing animals in captivity is practically a new industry, and many people engaged in the business know little if anything about it. The information at hand on this subject is very meager indeed; hence most persons are very shy in answering questions relating to the production of fur-bearing animals. State agricultural colleges and experiment stations and state game commissions and conservation societies should promote the raising of fur-

bearing animals in captivity. Extensive investigations along the line of feeding, breeding, and management should be made as well as with regard to diseases and parasites.

Conclusion

Too much stress cannot be laid on the value of the fur industry in producing a most important article in our domestic as well as in our foreign trade. Prior to the World War, the world's fur market was in Europe, but since then it has been transferred to the United States.

The largest fur sales in the history of the world are held in St. Louis and New York City. The winter sale held in St. Louis in 1920 totaled \$27,102,588. Ever since the world began, people have worn furs and they will probably continue to do so indefinitely. The fur business, therefore, has good reason for existence.

Information regarding seasons when pelts are prime is necessary for trappers and state legislators in order that the trapping seasons of practically all fur-bearers may be properly limited. It is also essential to establish closed seasons for certain fur-bearers that need this protection. Enforcement of such laws will most certainly prove very effective in conserving the fur-bearing animals, thus establishing the future of the fur trade.

Fur farming is a commendable and hopeful adjunct to the fur industry. Furs are being raised successfully and the industry has attracted much attention, principally on account of the high prices paid for breeding stock. Skunks, muskrats, and beavers have under certain conditions been raised successfully. Fur farming, therefore, occupies a place in the general scheme of conservation, but the extent to which this industry may become a factor in increasing the production of fur will be determined only by future developments.

CORRESPONDENCE

Muskegon, Michigan, March 6, 1922.

American Fox & Fur Farmer
Utica, New York

Gentlemen:

I want to compliment you on the last issue of the "American Fox & Fur Farmer." It seems to be getting better and better each time, and the articles are very valuable and instructive to anyone engaged in the silver fox industry.

Very truly yours,
NATIONAL SILVER FOX BREEDERS
ASSOCIATION OF AMERICA
J. E. SMITH, Secretary.

Sherwood, Wisconsin, March 4, 1922.

American Fox & Fur Farmer
Utica, New York

Gentlemen:

We have taken great interest in your magazine and consider it one of the best publications on fox farming that has been offered to the public. The articles in the February number are the best we have read for some time. Well pleased with the magazine and received a lot of good ideas from it. Wishing you the best of success, we remain,

Yours very truly,
CALUMET SILVER BLACK FOX RANCH
Per O. W. McCARTY, President.

Boston, Mass., March 2, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:

The last number of your magazine came today, and I like it very much. It is the best one you have gotten out yet.

Yours truly,
SAMUEL F. WADSWORTH, M. D. V.

Marathon, Wisconsin, March 6, 1922.

American Fox & Fur Farmer
Utica, New York

Gentlemen:

We must congratulate you on the February issue of the "American Fox & Fur Farmer." The article on Page 4 by George A. Jeffreys is worth more than a thousand dollars to any rancher.

Very truly yours,
LEMMER FOX & FUR COMPANY
Per A. R. L.

Reading, Pa., March 3, 1922

American Fox & Fur Farmer
Utica, New York

Gentlemen:

I await with great interest each month's issue and certainly do not want to break my files with the loss of one number.

Very truly,
R. E. MOLLEV.

Chicago, Ill., March 3, 1922

American Fox & Fur Farmer
Utica, New York

Gentlemen:

Your magazine is a work of art of which anyone can be proud. We wish you all success in the world.

Yours very truly,
DOG WORLD PUBLISHING CO.

Three Lakes, Wis., March 12, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:

You have some very fine articles in your magazine, which one interested in foxes could not very well afford to miss for several times the price of the magazine. I enjoy reading them very much. In regard to Mr. Trail's letter of Troy, Mo., which you published in the February number, will say that I think he has the right idea—that the fox men should form some kind of a co-operative marketing of pelts, and the sooner this is done the better it will be. I think it is very kind of Mr. Trail to offer to act as Secretary and see to correspondence, etc., until the association is formed. Someone has to start this and why not he. I would suggest that each man pay according to the number of breeders he has, say \$10.00 per pair or whatever amount it might take to accomplish the results we are after, but it would possibly be better to get each fox man to join the association, first paying a small fee, then at the meeting the amount of expense each should pay could be worked out.

I think the fox men should be cautioned not to sell breeding stock too cheap this year, for if we get this co-operative association, pelts may not sell as cheap again for many years as they have this. Yours respectfully,

F. C. CHENTHAM.



PLATINUM FOX SCARF FOR SPRING OR SUMMER WEAR
Shown by Lerner & Susser, New York. Worn by Miss Beryl Halley
of "Tangerine"

(Courtesy of "Fur Trade Review")

Notes of the National Silver Fox Breeders Association of America

By J. E. SMITH, Secretary

"WATCH OUR SMOKE!" This phrase was suggested by one of the members after the first banquet and smoker was held in connection with the regular meeting. It was quite natural that such a slogan should suggest itself at either of the last two meetings, as the atmosphere was somewhat hazy both times.

Dr. J. A. Allen, Animal Pathologist for the Canadian Department of Agriculture, came to Muskegon from Charlottetown, P. E. I. to give the members a lecture on "Diseases of Foxes, the Prevention and Cure." Members who were unable to attend this meeting missed a rare treat, as the valuable information Dr. Allen gave us was worth coming a long way to hear. The Association is very grateful to the Canadian Government for its courtesy in detailing Dr. Allen to come here and we regret that it was impossible for him to remain with us longer.

The meeting opened with the singing of America and from then on there was something doing every minute. We were favored with a piano solo by Mrs. J. E. Smith, a vocal solo by Mrs. Earl Alberts, a reading by Mrs. G. M. Porter and remarks from visiting members and guests.

The Association has employed the law firm of Cross, Foote and Sessions to defend it in a test case to determine the status of silver foxes in regard to the question of whether they are taxable as personal property. Mr. Charles Cross of this firm was a guest at the meeting and gave a talk in which he explained the matter as fully as he could and answered a number of questions asked by the members. The object of carrying the case to the supreme court is not to get out of paying taxes, but rather to get silver foxes recognized as domestic animals and thereby receive the protection they are entitled to.

A committee consisting of J. D. Ross, E. J. Peterson and J. Ford Stratton was appointed by the president to amend the Constitution and By-laws of the Association and report back at the next regular meeting April 5. No doubt a number of changes will be made that will put the Association on an even better basis that it is at the present time. The committee will appreciate any suggestions you may have to offer whether you are a member yet or not.

Plans are being made for the big International Live Fox Show which will be held at Muskegon, December 6, 7 and 8. Many improvements will be made over the last two shows.

It is the consensus of opinion that the foxes should be judged by comparison and the winners picked by elimination. It is doubtful if the foxes will be scored at the same time the winners are picked; but after the prizes have all been awarded, exhibitors will bring their foxes up to be scored. By having the prizes awarded the first day of the show the public who pay to see the exhibition will get their money's worth and not be disappointed as they have been when they were unable to determine what foxes were winners until the last day. That has been the greatest fault at all previous shows, and it surely should be corrected this year.

Stickers advertising the show will be printed and ready for distribution within a few days. We would be glad to

furnish any quantity of these to anyone who cares to use them on their envelopes, which will not only advertise the show, but will boost the Silver Fox industry generally.

Applications for advanced registry as well as the ordinary registry are coming in thick and fast. An office girl is kept busy making out certificates alone. The certificates issued by the National Association show the pedigree of the animal for three generations. This feature has received very favorable comment from those who have received them.

New Advanced Registration Certificates are being printed. These are sure to be appreciated, as they will be printed on the very best of bond paper and will contain information regarding the foxes that will be of value in mating.

During the past month the office has received 65 applications for advanced registration and 101 for the ordinary registry.

In addition to this, 25 new members were signed up during the same period. This should be ample proof that the National is founded on the right principles and that it will continue to function even in a greater capacity than in the past. There is no limit to what an association can do if it is conducted on the right basis, but of course it can be no bigger than the men who go to make it up.

The Association now maintains an office of its own, employs a full time secretary and a stenographer and still there is lots to do. The office is being equipped with labor-saving devices as rapidly as possible and it is hoped that we will soon be able to render the maximum of service. The latest addition to the office is a new multigraph machine for printing circulars. The circular letters sent out twice each month will be run on this machine.

Frank Agar of Langdon, North Dakota, has purchased a site for a ranch at Anoka, Minn., and expects to start his ranch there before long. Mr. Agar spent about a week in Muskegon the latter part of January getting all the information he could on the fox industry.

Subscribe to the
AMERICAN
FOX AND FUR
FARMER

IDEAL RANCH LOCATION

By F. E. BRIMMER, M. A., Contributing Editor

ONE of the most important considerations about the enterprise of Silver Black Fox farming is the best location of a ranch.

In the first place, as I travel about the country, I find a great many people still in darkness, still blindly believing that the earth is flat, still finding reasons for the theory that the sun goes round our planet—still holding to the notion that Canada is the only place to farm furs.

The fact remains that in our Northern States we have more ideal conditions under which to breed Silver Foxes than even Southern Canada, and this is not theory but a fact that even a .22-calibre mind can grasp.

The location of a fur ranch in any of the Northern States of the Union is ideal because we have everything that is best for fur breeding, especially foxes. Our springs come earlier and so we can save more pups. Our winters are just as cold, and even colder, than Southern Canada.

I find that most laymen get the idea that foxes with silver pelts must exist in a frozen country of bitter winters that is far colder than our snow season. The fact is that New York State, and many others, are actually colder than Prince Edward Island. Three things determine temperature: latitude, altitude and distance from the sea. Now the latitude of Southern Canada and the Northern States does not show a very great difference. And in altitude and distance from the sea many of our states are far ahead of Canada's Silver Fox industry center.

Hence to maintain that the ideal location of a fur ranch was not in the United States would be as foolish as asserting that the earth was flat! Our winters are cold, our springs early and kind to new litters, our summers are warm enough to shed the pelt well and so bring back a new gloss to the winter coat.

There can be no doubt but that fur farmers are coming to invade our country more and more. Recently I visited a ranch that has moved down from Canada. Perhaps that is not putting it exactly as it is, so I had better explain. Eight years ago three brothers by the name of Colpitts, James, Fred, and Harry, started with three Silver Black Foxes obtained from the original Oulton line of animals, leaving good businesses in Binghamton, New York, to go into the ranching of Silvers in Canada, and paying \$15,000 for that first trio of breeders.

After developing and expanding in Canada, climbing steadily through the past eight years, the Colpitts brothers conceived the idea that right in their home section was as good, if not better conditions under which to raise foxes, and so Broome County in the Southern Tier of the Empire state was scouted for a location, this being found eight miles from Binghamton, and the highest point in the county.

This is merely mentioned because it is an actual example of Canadian breeders finding right at home as good conditions as further north for their purposes. If you are thinking about branching out and starting a new ranch, why not look up the very peak of the county and locate there? The Silver Fox and Fur Co., down in Broome County, did

exactly that and have capitalized their location. You talk "the highest altitude in the county" to a prospective stockholder and it sounds logical to him.

Another thing that makes up ideal location conditions is the water supply, and a spring should be found on a hillside if possible. The ranch recently inspected on the pinnacle of Broome County, New York, has a spring water system winter and summer that is so profuse that it supplies running water at hydrants in every pen, as well as cook house, keeper's bungalow, and still enough left to make an artificial lake. Such a water supply represents to any ranch an asset of \$5,000 to \$10,000.

A few years ago it was thought that fox farms ought to be located far back in remote country, and while any ranch ought to be twenty or thirty rods from a highway, still there is no need of going into the interior. At least in breeding time the foxes will be well protected, and indeed at that time of year very few people are using the roads anyhow because of the snow.

The Silver Fox industry is almost as old as the automobile, and certainly as mature as the motion picture enterprise; it has become established in Maine, New Hampshire, Vermont, Massachusetts, New York, Pennsylvania, Ohio, Michigan, Wisconsin, Minnesota, Illinois, Iowa, Montana, Idaho, Oregon, Washington, Colorado, and California. Silver Black Fox ranches number into the thousands in the United States and the capital invested into the millions.

Minnesota Fur-Bearers in Danger

State Laws Not Sufficiently Protective—Muskrats, Skunks, and Raccoon Being Overtrapped—Game Commissioner LaDue Warns Fur Trade of Ultimate Extinction—Wolves Said to be a Pest—State Bounty May Be Increased—Lynx, Wild Cat and Bear Considered Doomed

From "Fur Trade Review," March, 1922

FUR-BEARING animals are on the verge of extinction in the Northwest. Harry J. LaDue of the Minnesota Game and Fish Department says so, and because he says so it is well for those interested in the fur trade to take notice. The immediate danger lies in the failure to adequately protect the muskrats and to provide protection for skunks. Minnesota produces about 500,000 muskrat skins and about 400,000 skunk skins every year. Muskrat skins which formerly were obtainable for the price of a few street-car rides now command \$2 and up, and skunks now command \$3.75 and up. Well, the inevitable result is that everyone who is footloose is hunting muskrats and skunks.

There are probably not less than 5,000 lakes and rivers in Minnesota inhabited by muskrats, and with only 48 game wardens the Game and Fish Commission is unable to guard them all. The act of the State Government in exempting several counties, last year, from the provisions of the act protecting muskrats was most unwise and in a majority of cases the protests against the protective measures were actuated by mercenary motives and without regard to the future of the fur industry. Skunks never have been protected under the Minnesota laws.

The advance of civilization, particularly lumbering operations, has destroyed the haunts of many fur-bearing animals, particularly fisher and marten. Wolves also are greatly destructive among fur-bearing animals.

With such facts before the State authorities it behooves them to take some active steps to conserve the wild animal life that is of positive value to the State. Mr. LaDue has some specific recommendations not only for Minnesota, but for all states.

Closed seasons should be closed seasons, in fact as well as in name and no authority should be given to grant exemptions. It is now certain that beaver and otter would have been wholly exterminated in Minnesota had it not been for the enforcement of closed season rules. Of course there has been poaching and illegal trapping, but when one cannot market the furs of protected animals the incentive to violate the law is greatly removed. Hence one safeguard is to make it impossible to exempt any territory from closed season rules. Witness the exemption of the close season on muskrats with disastrous results. Fur buyers in St. Paul and Minneapolis already note that these highly desirable animals are not nearly so plentiful as formerly.

It is apparent now that the Game and Fish Department of the State should have authority to limit the number of trapping licenses. At present the Commissioner has no discretion and is obliged to issue licenses to every applicant regardless of the existent supply of animals. It may not be easy to draw the lines as to who should or should not have trapping licenses, but if the professional trappers would be willing to accept territory and not encroach on other trappers and would accept other restrictions, the difficulty could be satisfactorily adjusted.

And then the skunks should have protection. This sounds like a joke, but there is most pressing need thereof in view of the great popularity of their fur.

And then the wolves. Minnesota is now paying what is regarded as a big bounty for wolves, and the annual outlay for this purpose is very large, but wolves seemingly are increasing in numbers. Mr. LaDue now proposes that the money paid out in bounties be devoted to employing wolf hunters to make a systematic and determined campaign against wolves. The bounty of \$7.50 is not sufficient to encourage a decisive warfare.

As far as lynx, wildcat and bear are concerned Mr. LaDue can see little hope for them even under protection, as the advance of civilization will destroy their natural habitats and eventually lead to their extermination.

But skunks and raccoon need closed seasons and the supply can be increased thereby for many years to come, as has been proved in the cases of beaver and otter.

Mink and weasel do not appear to need any protection just at present in spite of the fact that mink pelts command from \$9 to \$10 and up on the home grounds.

But, after all is said and done and all precautions have been taken for the protection of wild life, it is very likely that the solution of the problem of insuring an adequate supply of furs with which to meet the demands of milady rests in the success of the new industry of fur farming. Some day muskrat marshes will be on an equal footing with cranberry marshes and fox ranches will rank with pig ranches as a recognized branch of agriculture.



Boonville Fox Pelt Baings High Price
Sells for £145 at February Sale in London, When
2,375 Pelts Were Offered
From Utica, N.Y., Daily Press, March 22nd

The Central New York Fur Company, Inc., of this city, whose silver black fox ranch is located at Boonville, has just received word from Alfred Fraser of 212 Fifth avenue, New York, the American representative of C. M. Lampson & Company of London, England, that at the February sale of silver black fox pelts, one of the pelts sent from Boonville brought the highest price, £145, which, at the present rate of exchange, equals \$631.63.

These 2,375 pelts were sent to London from fox ranches all over the United States and Canada. The price obtained for this pelt is particularly gratifying when it is understood that this pelt was from one of the Boonville foxes, which the management decided was not quite up to the standard to be retained in its ranch as a breeder.

This sale proves conclusively the high pelt value of silver black foxes raised in the foothills of the Adirondack Mountains. The Boonville company is anticipating a splendid production of pups this spring. The weather this winter has been ideal for foxes.

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MARCH BULLETIN

News Notes of the American Fox Breeders Association of Boston, Mass.—Membership List Growing

THE so-called "Weeks" method of feeding foxes at mating time is being tried out again this year. This method is explained fully in an article appearing in the December 1920 Number of *The Black Fox Magazine*. It is claimed that, starting about January 20th, the foxes which are mated, should be fed on half rations for one week, then full rations again and on or before the tenth day on full rations the foxes will mate. On the ranch of Mr. McNeil, Holbrook, Massachusetts, where it has been tried out this year for the second time, two pair of foxes had mated before January 30th.

Mr. E. G. Pond, our popular Treasurer, who raises foxes just for the love he has for them, has painted a diagram on thin board about 30 inches square and in the center of each space representing a yard (eighteen in all) he has put a small brass hook and suspended from the hook in a round tag with the names of the foxes in each pen and other data written on the reverse side. It is very attractive, finished as it is in natural wood and is also useful and convenient for reference.

Our membership list now extends from Maine to California and also into Alaska and represents seventeen states.

Have you ever seen a graded price list of Silver and Black Foxes before seeing the list that was issued by the A. F. B. Association, December 1921? If you have we would like very much to know where you saw it and where this office may secure a copy. We are under the impression that this was the first list of its kind ever issued anywhere.

We have had a number of requests by parties wishing to have their names put on the free mailing list. In answer to this we have to reply that we carry a free mailing list but only the members of the Association receive all the bulletins, letters, etc.

You have most likely heard ranchers say at different times that they did not think such or such a State had cold enough winters to make good fur on a fox. Apropos of such statements a gentleman who called in on us the other day to discuss the advisability of transferring his foxes from Canada to the United States, and a rancher of experience and success (having sold over \$20,000 worth of foxes in one year), made the statement that he did not consider that it was absolutely necessary that the winters be extremely cold to secure a high type of fox pelt (wherein the fox naturally had a fine high type of pelt) as where the summers were extremely hot and the foxes subjected to the heat, was the reason for inferior pelts and animals. It was more important that the foxes have a cool place to live in during the summer, than extreme cold in winter.

Experienced breeders, who have learned the true value of the pelt and have had experience in selling the pelts, will fully agree with the above statement. The fullness of the fur can be and is, bred into a strain of foxes by careful selection and breeding, but the all important lustre and clearness of color must come from other means than matings alone.

Many ranchers do not have sufficient room whereby they may carry on intelligent work in the way of experiments, but there are many details even now, that many ranchers would consider an experiment, which are regular routine affairs with other ranchers. Among these are the

matters of advanced sanitation and treating of all foxes for internal parasites, fleas, and prompt freeing the Fox of the winter coat of fur and hair when it begins to shed. These things all effect not only the health of the fox to a very large degree but of course also effects the entire pelt and is one reason for the deterioration in different strains from year to year. Prolificness in a Fox counts for very little if the strain is going backward instead of forward. It is only natural to expect that any strain of foxes in the hands of one owner, would improve from year to year.

The many new rules and regulations governing such matters as Standard Shows, Affiliated Clubs and Associations, etc., which have recently been passed by the A. F. B. Association, are all important to the Fox Industry and show that the A. F. B. Association is making wonderful strides in the comprehensive work of stabilizing the industry as a whole, which will benefit fox breeders in every part of the United States.

If you are not a member of the A. F. B. Association, which you should be (to advance your own personal interests), you should write to this office and register your name, for the A. F. B. Association sends free circulars of interest and importance to every fox breeder, not only in the United States, but in Canada.

To show that the fox breeders are alert in their business, there has been registered with the A. F. B. Association about seventy-five per cent as many foxes during the last quarter of the year as were registered in all time previous.

Have you a copy of "Questions to Dealers"? It is free. We have had many compliments about it.

Beginners in the industry at different times write to the Association asking where Silver and Black Foxes may be bought. Members' names and addresses having foxes for sale are sent to the person asking for the information, and it is up to the prospective purchaser to make his own selection as to where to purchase, thus doing away with his being flooded with a lot of literature setting forth the fact that there is but one best strain of foxes to be had, etc. Every member having foxes for sale has thus the same chance to sell his foxes as the other members. The new file cards, for compiling the Herd Book, have been received from the printers and are now being tabulated. It is hoped to have the Herd Book, Vol. 1, ready for distribution by June first this year. If you intend registering your foxes and having their registrations appear in Vol. 1 of the Herd Book we advise your attending to the matter at once.

Following the example of the Kennel Clubs and other Associations (not Fox Associations) the A. F. B. Association has decided to give one free registration of a fox to each new member elected to membership in the Association. This action was voted on at a Governor's meeting in February.

New members elected at last meeting were: Richard A. Trail, Troy New York; D. S. Crowe, Orange, New Jersey; Arthur Schleicher, Lake City, Minn.; Dr. S. E. MacDougall, Buffalo, New York; Edmund Prenschoff, Petersburg, Alaska; Benjamin E. Morse, Canton, Mass.; John A. Breen, Utica, New York; Rev. John F. Brant, Newtonville, Mass.; Clarence M. Waite, Marlboro, Mass.

CLASSIFIED ADVERTISEMENTS

Under this heading classified advertisements up to 100 words will be inserted at the uniform rate of 5c a word, payable in advance. A discount of 10% will be allowed on yearly contracts for this service. Send check with order. We are of the opinion that these short advertisements bring splendid results at a very small cost. No preferred positions are allowed.

WANTED—Two pair Live Beavers; one pair Live Fisher; one pair Live Otter; and your address if you are interested in securing Interior Alaska "Sterling Silver" Foxes of World's record pelt values. "Sterling Silvers" pay BIG DIVIDENDS. **ALASKA SILVER FOX FARMS, Lake Placid, N. Y.**

FOR SALE—Self lock tongs for handling fox. **GEORGE F. GRAHAM, Cadillac, Michigan.**

CLOSING OUT TWENTY PAIRS CROSS FOXES—Some produce Silvers in litters and are as valuable as blacks. Two hundred Silver Blacks to select from pelt value. Ten percent down, balance as convenient. **TODD BROS., Milltown, Maine.**

RADIOL OINTMENT recommended for Mange, Eczema and all skin ailments. Postpaid \$1.00. **RADIOL LABORATORY, 4198 Vine Street, Cincinnati, Ohio.**

RAISE SILVER FOXES. I pay \$300 to \$900 a pair for foxes raised from my stock. Furnish registered pedigreed animals. **R. A. TRAIL, Troy, Mo.**

JOIN US. Start Silver Fox Farming. Beginners taught on our large, modern ranch, if desired. Capital unnecessary. Wonderful business opportunity, restricted to a few. Would you be satisfied if you could market annually twenty or thirty Silver Fox Pelts? Write today. Semmelroth Association, Grand Rapids, Minnesota.

FUR FARMING—Now is the time to begin Fur Raising. Send \$1.00 for Fur Farming, a book of 278 pages with chapters on raising Fox, Mink, Skunk, Coon, Opossum, Muskrat, Etc. A 32 page descriptive booklet free. **A. R. HARDING, Publisher, 75 North Ohio Ave., Columbus, Ohio.**

VICTORY FOXES—We own Victory Bob, score 94 11-12 (first prize, class two) and Victory Chief, 94 1-6 (third prize, class one) Muskegon Show, 1921. Fine lot of pups this year to choose from. Satisfaction guaranteed. Terms if desired. **VOLMARI & HUGHES, Muskegon, Michigan.**

FOR TRADE—Longs Crispette outfit for Registered Silver Foxes mated for breeding. **REO R. MOORE, Worthington, Indiana.**

FOR SALE—ONE SILVER BLACK FEMALE, proven breeder, also crosses, proven breeders. **T. A. Duncan, Mazeppa, Minn.**

FOR SALE—Wire Netting. Wholesale prices. Electric Fox Thief Alarms. **NORTHERN RACCOON FARM, Fairfax, Minn.**

FOR SALE

I have for sale a limited number of 1922 pups of unquestioned quality. I shall be glad to correspond with persons who believe in quality foundation stock. Address

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I Pay \$300 to \$900 A Pair

For Foxes raised from my stock. Furnish registered stock and buy all you raise. Three plans of purchase.

R. A. TRAIL

Troy, Missouri

FUR SALE CLOSES STRONG

Advices from the fur sale held by the New York Auction Sale Company, which succeeded the New York Fur Auction Sales Corporation, indicate that prices were fairly high throughout the recent sale. Prices, compared with those received at the September sale, showed an increase on the different furs from 25 to 50%. The annual Spring sale will start in New York on April 17th and promises to be a very large sale.

NO BACK NUMBERS LEFT

We regret very much to be obliged to announce that we have no back numbers of the "AMERICAN FOX AND FUR FARMER" left in our office. The demand for back numbers has far exceeded the supply. We have had so many letters, complimenting us upon the splendid articles which have appeared in recent issues and requesting additional copies, that we are more than gratified with this indication of the splendid reception which is being accorded our publication.

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Utica, N. Y.

AN ANNOUNCEMENT OF IMPORTANCE

This publication is pleased to announce that Dr. C. P. Fitch, chief of the Department of Agriculture of the University of Minnesota, University Farm, St. Paul, Minn., will be glad to offer any advice that he may be able in regard to the diseases among foxes, either through the columns of this publication or directly by letter, or both. There are many times when fox ranchers of this country are in need of some advice relative to serious problems confronting them connected with the breeding and raising of foxes in captivity, and we are sure that Dr. Fitch will be very glad to promptly respond to any inquiries which may be sent to him direct or through these columns. In addition to this, Dr. Fitch will be glad to receive specimens for examination and study of diseases among foxes, in order to obtain more information. No more important subject has been brought to the attention of the fox ranchers of this country than this, and we are sure that they will take full advantage of it. Don't hesitate. Write your questions plainly and on one side of the paper only, and, if possible, type-write them.

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American Fox and Fur Farmer

Vol. I

APRIL, 1922

No. 10

PUBLISHED MONTHLY, 406 ARCADE BUILDING, UTICA, N. Y.—PHONE 1778-W
An American Publication Devoted Exclusively to the Silver Black Fox Industry and Fur Farming

C. L. ROBINS, *Manager*

PUBLISHED BY "AMERICAN FOX AND FUR FARMER"

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A TREAT IN STORE FOR OUR READERS

During the remaining months of 1922 we promise our readers some rare treats in the way of original articles on fox ranching and fur farming from the pen of men well versed in the subjects and of such unquestioned reputation that their articles will attract widespread attention. Watch us grow as the months go by. Co-operate with us by urging your friends to subscribe. Boost your own publication. Write to it—write for it. Write about it. Do it now.

BROKERS NOT NEEDED

There is no reason why there should be brokers in the fox business. There is no good reason why the prospective purchaser of foxes cannot purchase his foundation stock direct from the company or its duly accredited representative. The interests of both company and purchaser will be best served by such an arrangement. Brokers are too apt to sacrifice quality, for price, and the honest fox rancher cannot afford to do that. Purchase your foxes direct. Eliminate the broker.

PRICES FIRM

The prices received at the various auction sales held recently for silver black fox pelts as well as for all other fur remain firm and in the main were entirely satisfactory. The market is assuming, in our opinion, a common sense attitude, one that speaks well for the future of fur farming.

BE CLEAN—BE SANITARY

No rancher can be too careful as to cleanliness and sanitation on his ranch. Get the habit of keeping all your dishes and cooking and drinking utensils scrupulously clean and you will find that your foxes will be all the healthier for it. Instruct your help in these particulars and then see that they live up to the instructions.

A BUNCH OF LIVE WIRES IN MINNESOTA

The sportsmen of Minnesota are publishing an official bulletin of the Minnesota Game Protective League entitled, "The Bull Moose," Volume 1, Number 1 of which appeared in March and has attracted considerable favorable attention. It contains several interesting articles by men prominently identified with game protection all over the country and has as contributors some of the real sportsmen of the West. The bulletin is edited by Harry J. LaDue, who is well known to Minnesota sportsmen.

WE ARE CONVINCED

The Publishers of "THE AMERICAN FOX AND FUR FARMER" are firmly convinced that the fox rancher and fur farmer believe in and appreciate this publication. Only ten months old and yet this publication has the endorsement of every fox rancher and fur farmer who has seen it, and that means practically all of them. It would take a large volume to print the letters of commendation and congratulations received at this office. These letters are backed up by good hard dollars for subscriptions until now we believe we are reaching more actual prospective fox ranchers and fur farmers than any publication of our kind in the United States. We shall continue to grow—evidence of this fact reaches us every day—yes, every mail—in the form of paid in advance subscriptions. We extend our thanks to all. We promise to merit this confidence by continually improving this publication. We promise to play the game fair and give both our subscribers and our advertisers a square deal.

A SPLENDID RESPONSE

We are advised that the Bureau of Biological Survey, U. S. Department of Agriculture, Washington, D. C., have received a great number of replies to the questionnaire sent out to the fur farmers of the United States recently. The responses have been so generous that it has required a great deal of time to digest and assemble the data received, therefore, it may be that some of the ranchers have not received replies to the various questions which they sent in along with the response to the Department's request. This publication believes that the Department will, in the very near future, answer every one of these queries and give the desired information. The fox ranchers and fur farmers of the country should have a little patience in the matter and we believe they will when they know that the Department is doing everything they possibly can, with the limited amount of help at hand, to answer all inquiries as promptly as possible. It is understood that the inquiries are being taken up in their turn and answers will be sent out from Washington as rapidly as possible.

SPLENDID REPORTS

We have received some splendid reports of exceptionally large litters from many of the ranchers of the United States, and from these reports we gather that the production of pups this season bids fair to be large. This is a critical period with the rancher and too much care cannot be exercised.

EXTERNAL PARASITES OF FOXES AND THEIR TREATMENT

By GEORGE A. JEFFREYS

(Copyright, 1922, by George A. Jeffreys)

THE coming summer months offer an ideal time for the treatment and eradication of external parasites. Any parasite which in any way deteriorates the quality of the fur, should be fought until every vestige of it is exterminated. The fight should not end here but preventative measures should be set up with an ever watchfulness that the disease may be smothered and nipped in the bud before it spreads to the whole ranch.

External parasites may be roughly divided into two classes. The several species of mange can be placed in one class while lice and fleas in another. Mange is caused by small parasitic mites, as small as a pin point and smaller, that live and burrow in the tissues of the skin and are therefore more or less difficult to treat with medicants. Lice and fleas however live on the surface of the skin in the fur, and are more easily removed.

Mange and Its Varieties

Mange mites belong to the order of Acarina which include the many species of ticks. The varieties of mange which are found to exist in dogs and foxes are four in number. These four are divided among two families. Three forms, Sarcoptic, Psorptic, and Choriopic which also includes the ear mange, belong to the family Sarcoptidae. The other form of mange, *Demodex Folliculorum*, is distinct and more serious than the rest and belongs to a family by itself, Demodicidae.

All mange mites have short non-articulated bodies, the head and thorax all being in one mass. The four pairs of legs are inserted directly into the body and are terminated by hairs. The sexes are separate, the females being larger than the males but not as numerous. The males are distinguished from the females by presence of copulatory organs. The male dies after copulation. The female passes thru four stages: 1., larvae; 2, nymph, which resembles the adult but has no sexual organs; 3, the pubescent female; 4, the egg bearing female. A pair of mange mites is said to produce 1,500,000 descendants in three months. Stitt states that the transference of eggs, larvae, or pubescent female does not seem to transmit mange. It is the egg-laden female only.

Of the several species of mange, the Follicular mange is the most dreaded and the most difficult to cure. Fortunately this disease is not common. The writer, however, has seen a small group of foxes almost entirely wiped out by this mange. Many ranchers have conceded that the best and easiest way to exterminate this disease, is to kill the affected animals, burn the bodies and dens, and allow the pens to lie fallow for one or two years, sprinkling it over with lime. Often, however, the animals may be valuable proven breeders and may represent a considerable portion of the ranchers investment. In this case the affected animals should be isolated and given a thorough treatment. From experience the writer believes that this disease can be cured if taken in time.

Since animals with this disease are a constant menace to others in the ranch, they should be isolated by removing them to hospital pens or some building or pens away from the ranch where a thorough treatment should be given.

The Follicular mange mite has different habits and modes of living in the skin than other forms of mange and therefore it requires a different method of treatment. The female mites

burrow along side the hair into the hair follicles and sebaceous glands down to the root of the hair. Here they lay their eggs and hatch the young. One burrow sometimes contains several ovigerous females along with their eggs and young. It is this fact of being buried out of harms way that renders this mange difficult to cure.

The surest way of determining this disease is by examining the pus and scrapings under a microscope. This parasite is



Fig. 1—Mite of *Demodex Folliculorum*
(100x, after and Glass)

easily recognized by its elongated and worm like appearance. Fig. 1 shows the mite magnified 100 times. The adult mite has eight short, thick, clawy legs attached to the thorax, while a newly born larvae has only six feet. The abdomen is worm-like and wrinkled. If no microscope is at hand a sample of the pus should be sent to the nearest laboratory.

The symptoms of follicular mange differs from the sarcopic mange in that it is rarely itchy and if so only very slightly. The mites produce an inflammation in the sebaceous gland causing a local infection with pus. Finally pustules the size of a pea are formed which discharge a purulent and bad-smelling fluid. As the disease progresses the nodules dry up and the skin becomes covered with scales and crusts. The animal is not itchy and does not scratch himself as in other forms of mange. The skin of infected places loses its hair and assumes a gray-blue or reddish color and is traversed by grooves and cracks making it look so much like an elephants hide. It sometimes happens that this form of mange will come to life again after the animal appears cured. This is probably due to isolated mites that have escaped medication.

To obtain a cure of follicular mange one must faithfully and patiently follow out the treatments to the letter. It must be understood that the most important principle is to get the medicine into the hair follicles and in contact with the mites, otherwise a relapse of the disease will occur. This contact must be obtained three or four times, once every three or four days.

Of the various combinations of chemicals and methods of application tried by the writer, an oil ointment has been found to be the most effective. Ordinary dipping solutions do not

seem to have the power of penetrating the hair follicles. Also where a number of treatments are necessary a constant dipping in water would tend to expose the animals to colds especially in winter.

The fur of the diseased animal must first be clipped short in order to make the application of the medicine thorough and easy. The skin of the animal is next thoroughly washed and cleaned with soft soap and warm water removing all of the crusts and debris. The fur is then rubbed and dried with towels. The next step is to apply the oil ointment made as follows: as much olive oil as desired, combine with this 3 per cent cresol, 2 per cent. lysol, and 6 per cent. tincture of iodine. The animal is laid on its side by an assistant and held in position by means of tongs and grasping the hind legs with the other hand. The oil remedy is poured on the affected places and rubbed well in with the fingers, rubbing each place from three to five minutes. Care should be taken to treat and rub every suspected spot, rubbing it well in around the nose and eyes. At the end of four days the fox is given a second treatment, and at eight days a third treatment is given. The next day after the third treatment the animal is washed again with soft soap and warm water, and thoroughly dried. The fox is now let alone for a week or two and carefully watched for any new eruptions on the skin, which would necessitate repeating the treatment. The rubbing and massage will not only kill the mites but will stimulate the growth of the fur and put on a brilliant lustre.

Sarcoptic Mange

The most common form of mange is the sarcoptic, which is fairly easy to cure if treated properly. It is easily recognized and differentiated from the follicular mite by its rounded and slightly oval body. There are eight conical legs, the two posterior being nearly concealed beneath the abdomen. The male is almost destitute of compulsory suckers and has no abdominal lobes. Fig. 2 shows a sarcoptic mite magnified 100 times.

The female burrows galleries in the sub-epidermic and lays her eggs in the bottom of these furrows. The parts of the body most generally attacked first are the sides of shoulders, sides and back. The disease begins to manifest itself in fifteen days and more so by the end of the month. The incubation of the

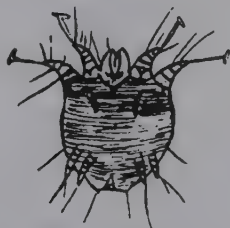


Fig. 2—Sarcoptic Mite
(100x, after Neuman)

eggs is from three to seven days and the generative faculty is reached when the mite is 15 days old.

The animal having sarcoptic mange is itchy and scratches himself often. Little granules and crusts can be seen around several hairs. If this crust is removed there is left a red, moist and denuded surface. At other points with crusted patches are salient papules which are scarcely visible. The papule raises the epidermis which gradually dries and forms a crust. In the early stages the small lesions are disseminated; they bring about the fall of hairs in small and circular patches, which are multiplied and extended finally forming large dry patches covered with debris and fur.

This disease can be effectively cured with any good dip solution. The kind of treatment should depend on the time of the year and the weather. In the winter oil ointments are safer to use, while water dips are more convenient for the summer. Oil ointments are applied as for follicular mange.

The method of dipping should be simple and thorough. Clipping the fur is not necessary but it is of advantage. Dipping boxes should not be used as these tend to hold the fur down and so prevent the solution from penetrating into the skin. The fox can be easily held by its head with a pair of tongs with one hand and its hind feet with the other hand. The fox is slowly immersed into the dipping tank filled with a luke-warm dipping solution of 5 per cent. Liquor Cresolis Compositus or any other standard dip. The head or nose of the animal should be kept from going under. An assistant now works the fur back and forth making sure that the solution reaches every part of the skin. By allowing the fox to bite on a broom handle or stick the solution can be worked into the skin around the eyes and ears with a soft brush.

After the solution has been thoroughly worked into the skin which should take from three to five minutes, the fox is lifted out and the solution is squeezed out of the fur as much as possible. The animal is then laid on a bench and is further dried by rubbing and squeezing its fur with dry towels. By this method the writer has successfully dipped eight blue foxes in the middle of February. The method, however, is advocated thru the summer while the oil ointment is preferable in the winter.

There is another form of mange, the Psorptic, that belongs to the same family as the Sarcoptic but is less severe. This mite is larger than the Sarcoptic and does not burrow like the sarcoptic but lives more on the surface. It commences and localizes itself at the upper part of the neck, head and tail. The parts become denuded of fur, tumified and wrinkled. It assumes a form in patches being tumified at the base, crusted and more humid. The treatment of this mange is the same as for the Sarcoptic.

Ear Mange

This mange and its treatment is admirably described by C. P. Fitch and W. A. Riley in the February number of the American Fox and Fur Farmer and only a passing mention is made here. Fig. 3 shows a camera lucida drawing of an ear mite taken from a foxes ear. They are considerably larger than other mange mites except the Psorptes and can just be seen with the naked eye. The writer has successfully used the same treatment as advocated by Fitch and Riley. This is olive oil containing 2 per cent. Liquor Cresolis Compositus or Lysol. Several cotton swabs should be made by taking long slender sticks the thickness of a match and twisting a pinch of absorbent cotton on the end. The canal and folds of the ear are first carefully cleaned out of debris and wax. The oil preparation is then dropped into the ear and the folds of the ear are carefully painted with the swab soaked with the oil.

Young foxes are very susceptible to this mange and it is therefore a wise precaution to examine the ears of all young foxes when six weeks old. The affected foxes should be treated several times within twelve days. This disease although very contagious is easily cured. Although this mange may not cause any trouble, it sometimes produces a serious canker of the ears, and for this reason every diseased animal should be given a thorough treatment.

Lice and Fleas

Unlike the mange mites, the lice and fleas are readily discernable to the naked eye and easily recognized. Young and growing pups seem to be more susceptible to these parasites than adult foxes. Lice and fleas become less prevalent in the early part of the winter. This is probably due from the fact

that cold weather inhibits their development especially fleas which reproduce in the dirt and cracks about the dens. At the approach of spring and whelping time however, they commence to multiply rapidly, and eagerly avail themselves of the tender young pups, where they set up housekeeping and raise thousands more of their kind.

Pups harboring lice and fleas become unthrifty and weak. If the infection is heavy, the development of the fur and animal is not normal and the weakened animal becomes susceptible to other diseases.

The most common form of lice found on foxes is a blue suckling louse. This louse is slightly larger than the size of a pin head and the central part of the body has a blue-gray appearance, while some are whitish gray. It prefers to live among the thickest fur, where it attaches itself to the skin and sucks the blood of the host. Blue foxes brought from the Islands of Alaska have been known to harbor such great numbers

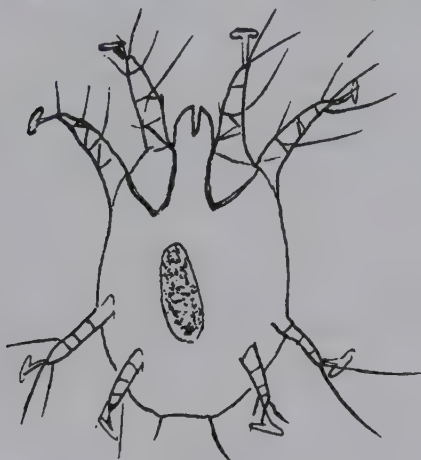


Fig. 3—Ear Mite, camera lucida drawing (96x)

of this louse, that the butt of a pencil could not be placed anywhere on the skin without hitting one of these parasites.

The blue sucking louse is little affected by insect powders. The most effective treatment is dipping the animals in a standard solution three times, once every four days. The same procedure of dipping should be followed as dipping for mange.

The biting louse, *Trichodectes Latus*, is found particularly around the head and neck. As far as the writer has been able to ascertain, this louse is very rare in foxes. Its treatment is similar to that for the blue sucking louse.

The Flea, *Pulex Vulpis*

This elusive little creature quite often, is like a bad penny that always turns up. Just when the keeper is sure he has them exterminated, springtime is sure to make them appear in some fox. The only solution to this problem is to fight continuously with disinfectants and insect powders. Foxes with fleas should be treated with a dip solution at least twice a year, in the summer and early fall. Each treatment should consist of two dippings eight days apart. Fleas have also been effectively combated with insect powders. Persian insect powder is considered one of the best and harmless to the animal. Dr. Ned Dearborn has recently invented a box for treating foxes with insect powders. The box, made of galvanized tin is just large enough to hold a fox. A few inches from one end of the box is a partition fitted with an adjustable opening or wood collar the size of a foxes neck. The cover of the box fits over the body while the portion over the head is left open to give the animal plenty

of air. The fox is placed in the box with its neck locked in the collar. In that position it is unable to bite or struggle. The powder is applied thoroughly into the fur, then the cover is put in place and left in this position for five or ten minutes. The fleas and most of the powder fall to the bottom. After treatment is over and the fox is taken out of the box, the powder and the fleas remaining in the box is collected and the fleas sifted out by means of a fine sieve. The fleas are destroyed by burning while the powder can again be used over.

Disinfection of Dens

Fleas reproduce and live in the crevices and dirt of the dens, while mange mites and lice can live for days in similar places. In fighting these parasites it is not enough to treat just the animal and not touch the dens. With any treatments against these external parasites there should be a thorough cleansing and disinfection of dens. In follicular mange the dens should be burned while the pen should be disinfected and left fallow for a whole year. For other forms of mange, lice and fleas, the dens should be cleaned, all old packing removed and burned. The dens should then be scalded out with boiling water, then washed with a solution of *Liquor Cresolis Compositus*. Washing the dens with a strong solution of coal tar disinfectants is beneficial and not harmful in the least. A fox would have to drink a considerable amount of this solution to kill himself, but there is no danger of him even tasting it.

Summary

Follicular Mange is best treated with an oil ointment. The fur should be clipped and the animal should be washed before and after treatment. Other forms of mange are either treated with oil ointments or by dipping in some standard dip. Three treatments are necessary the animals being thoroughly dried after each dip. All animals affected with the mange should be removed to the hospital pens.

Lice are best treated by dipping, while fleas may be either treated by dipping or with insect powders. The continuous application of insect powders on animals and in dens being a good means to keep down and exterminate fleas. With every treatment against external parasites a thorough scalding and disinfection of dens is necessary.

PRIZE-WINNING SILVER FOXES

(From "Fur Trade Review," April, 1922)

A unique record was made at the only silver fox show held this year, when a fox named "Sheffield Scout," owned by the Sheffield Silver Black Fox Company, of Massachusetts, scored 98 points. This score was one and two-thirds of a point higher than any previous score at any show.

At this year's show, which was held by the National Fox Breeders' Association in Muskegon, over 240 foxes were exhibited. They were awarded prizes according to divisions: Standard bred, or so-called Prince Edward Island foxes and Alaska silvers, or foxes from strains other than the Prince Edward Island breed. The Alaska silvers are generally larger animals. This year competition was unusually keen and the excellence of the foxes exhibited was remarkable.

"Sheffield Scout" is a half-silver male and is a Prince Edward Island pedigreed fox, almost as near to perfection as it is possible to produce. The best fox in the Alaska division was a female named "Lady Bell." This animal scored 93 5-6 points and is owned by A. L. Williams, of Muskegon. The best matched pair in the show regardless of age, class or division was "Sheffield Martha" and "Sheffield Scout."

The scoring throughout the different classes and divisions was very close, especially in the standard bred division, the first three in each class averaging well above 90 points each. In the Alaska division, or silver foxes other than pure bred Prince Edward Island animals, the place winners in each class had point averages less than 90.

Mr. Advertiser---Please read this

Newport, N. Y., April 14, 1922

Mr. C. L. Robins
Manager, "American Fox & Fur Farmer"
Utica, New York

My dear Mr. Robins:

Everything is looking bright for a big year this season and I expect we will have our production sold much earlier than usual.

I will always credit a large part of our success to advertising in "The American Fox and Fur Farmer" which, though more than we could afford at the time, has returned us larger earnings than any other investment we have ever made.

Wishing you compliments of the Spring Season, I am

Very truly yours,
J. T. WOOSTER, 2d, Secretary
Adirondack Mt. Silver Black Fox Co., Inc.



CHARMING WRAP OF HUDSON SEAL LINED WITH DERBY
VELVET COMPANY'S VEL DU PAR

One of an extensive line of exclusive models shown
by Miller Fur Company, New York

Photo by Tornello

(Courtesy of Fur Trade Review)

Fur Farming and Plant Culture MUSKRAT FARMING

By ROBERT C. HODGSON

(From "Hunter-Trader-Trapper," April 1922)

There is no one so well situated for fur farming as the farmer. There is not one farmer in a hundred or probably several hundred who has not land adapted to the raising of some fur-bearer. If there is a pond or stream or marsh, muskrat or beaver can be raised; if there is a woods with a stream running through it, mink or fox or skunk; and if a field with some trees and shrubbery on it, rolling land, and a stream running through it—skunk. Fox do not require a stream, neither is it absolutely necessary for skunk, but it is better.

It goes without saying that the most successful farmer is the one who knows his land and animals and produce from a to z, and knows them past, present and future. No person can hope for success who does not learn as much as he possibly can about the business in which he is engaged. This applies with special force to this new branch of animal husbandry, for it is a new industry and there is much to learn. It must eventually become standardized and while at present it is moving rapidly to this end, it has still some way to go. As knowledge for the success of the venture is essential, learn all you possibly can of the animal's foods, habits, what and how their fur is used; in fact all the peculiarities and general characteristics of the animals in question. The following information on the animal's habits should be studied and retained for future use.

Muskrat—The muskrat, or to give it its Indian name proper, musquash, derives its name from the musky odor secreted under the skin, on the belly, near the two hind legs, and the fact that it closely resembles a mouse or rat. In size it is four or five times the size of the common barn rat, its head and body being from thirteen to fifteen inches in length. The tail, which is two edged and for two-thirds of its length rudder shaped, is nine to ten inches long and covered with scales and thin, short hair, the edges of the tail being heavily fringed. The tail, although from a commercial standpoint worthless, is of great assistance to the muskrat, for it acts as a rudder in swimming. The hind feet are slightly webbed which makes them expert swimmers; the fore feet are bare with rather long claws. The legs are short, the ears similarly and the eyes small, black and beady. The fur is a dense woolly underfur with a long glossy coat of dark brown over-hairs on the back and dull ashy beneath. In some parts of the states, along the New England States, muskrats are nearly black in color, so much so as to be termed black muskrats, and these are more valuable than the ordinary species.

Muskrats are amphibious in their habits. They are nocturnal and are frequently seen swimming and feeding in the day-time. Especially is this true during the early fall months, when they are preparing their winter home. Their homes are of two kinds—the large dome-shaped houses and the burrows in banks. Always the entrance to the house is under water. When the animals live along streams where the banks are high and building materials are scarce, they invariably make burrows in the bank; and where they live on marshes or along ponds, where there are no banks adapted for houses, and where building materials are plentiful, they build the domeshaped houses. These latter houses are made of bulrushes and other aquatic plants and often rise out of the water to a height of five or six feet. The idea that there are two species of muskrats, the bank and the house rats, is erroneous, for they are identically the same animal, and the only reason they have variations in their

style of houses is for the reason stated. These houses the muskrats live in during the winter, gathering into families of from six to ten members.

Muskrats thrive best in sluggish streams and sands.

They are very prolific animals, bringing forth from six to nine in a litter and three litters a year. The first kittens also have a litter the same year they are born and these are about the size of house rats in the fall and are termed "kitts" in the fur trade.

Muskrats have enemies in the shape of the fox, wolf, mink, otter, lynx and owl, the worst of which are the mink and owl in ordinary communities, and where otter are found to any extent, the otter.



ROBERT G. HODGSON

Foods—They are herbivorous animals; that is, their chief food consists of herbs, roots, grasses, and vegetables. They have however been known to eat flesh, especially that of their own kin. In winter they live chiefly on the roots of aquatic plants such as bulrushes, pond lilies, etc.; while in the summer they eat these and grasses, mussels, clams as well as certain grains and nearly all vegetables. Where there is a garden or an orchard within reasonable distance of their home they will make many trips there and secure apples, mangels, turnips, cabbage, carrots, water-melons, etc.

Muskrat furs have never been in such demand or enjoyed such high prices in the history of the fur trade as they are today. This for several reasons.

This particular fur has always enjoyed great popularity, but until recent years it has been used mostly in its natural state, and being very reasonable in price was in great demand among the masses. Later it was dyed and sold as mink, mink marmot and sable. Thanks to the ingenuity of some fur dressers, Hudson seal was discovered and muskrats came into their own. This seal is one of the most beautiful of furs, it being the finest of muskrat skins, pulled and dyed. Fashion has welcomed such a fur and the demand has been so great that it is almost impossible to get sufficient furs to satisfy the demand. Muskrat hides, similarly treated, are also known as seal, electric seal, Red River seal and Hudson Bay seal.

In the raw state the fur of the muskrat is dense and soft and in general appearance much like that of the beaver. How-

ever the pelage is shorter and less close and the pelt somewhat inferior in durability.

Muskrat Farming—The raising of muskrats is a branch of the fur farming that is not so generally understood nor entered into as certain other animals. However the possibilities are great and it is my firm opinion that where the proper site and conditions can be secured, the raising of these animals for their fur will rank well with the raising of any of the more expensive animals by reason of small cost to raise, present high prices and because they are so prolific.

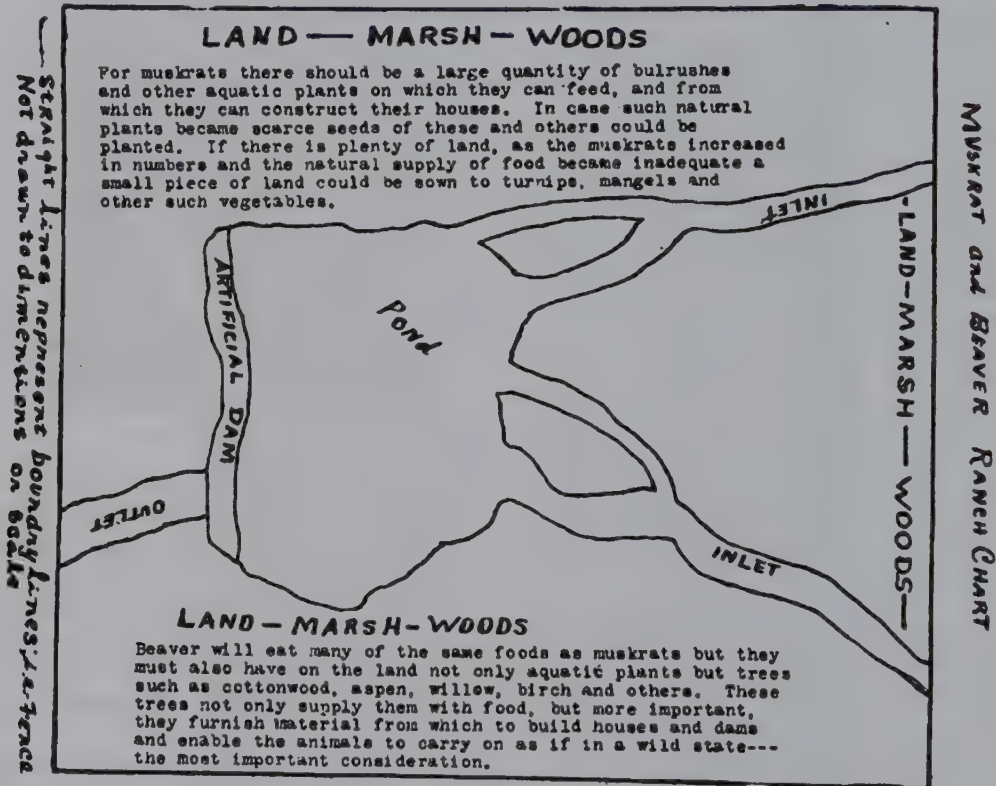
Roderick MacFarlane, a chief factor of the Hudson's Bay Company, in writing of the mammals of the Mackenzie River region, states that the female has two litters the first season, and three each succeeding season, and that the number of young varies from 8 to 20. His statements are based on the testimony of the company's Indian Hunters, who are keen observers.

This shows that muskrats are not unlike field mice, to whom they are related. This conclusion is further strengthened

The Location—Muskrats must not be hampered in any way if success is to be met with in their domestication, and if possible they are not to be made a way that they are other than in their wild state.

A slow sluggish stream, with a pond is the ideal location, where bulrushes, water lilies and other aquatic plants and grasses flourish in large quantities. It is not always possible to find such a place and where it is not a small stream bordered by marshy land can be used, or a strip of marsh and water along a lake. In the former case a small pond can easily be made by damming up the stream and it will surely pay to do this.

In case the marsh, pond or stream freezes right to the bottom during the winter months the location as it is is useless, for muskrats must have water and even if during the open season they live in such a place, they promptly migrate to open water as the cold weather comes. If a person finds his location freezes solid during the cold months he can either find another



ed by the remarkable way in which the marshes, depleted by vigorous winter trapping, are replenished before the opening of another season.

The only places where they are being farmed to any extent is in some of the states bordering on the coast and even then this could hardly be called farming. Persons will rent so many acres of a large marsh and stake off his limit of ground for "ratting purposes." The animals he traps when the season opens; he is never compelled to feed them or go to any expense and yet he takes in thousands of dollars annually. The main thing is not to reduce the breeding stock below a point where they cannot replenish before another season comes.

location or by means of a dam, raise the water to such a depth that it cannot freeze.

As to how much land to take in, this cannot be very well stated on paper. On average marsh land from fifty to one hundred muskrats can yearly be raised to the acre, and not one litter of food need be fed them nor practically any attention given. It is dangerous to go over this mark for the crowding of any animal means loss and disaster.

A fence four feet above ground should be placed around the farm. Enclose as much land as you possibly can for muskrats must have plenty of room and the nearer nature they are kept and raised the greater will be the degree of success. The

fence should be one and one-half inch mesh, galvanized and sunk a foot in the ground, to keep out mink and such predatory animals an overhang should be provided on the top of it, the overhang outwards of course. This will be dealt with at more length in a later article.

Feeding—As I said, up to a certain number on average land the animals will secure their own food from the marsh and the water. This is by far the better way to conduct the ranch, for it is my opinion the animals will do much better this way. However, if for any reason, it becomes necessary to feed them, even if only to run them over to a time when natural foods can be secured, apples, carrots, cabbages, mangels, turnips and all such vegetables can be scattered around the grounds where the animals cannot fail to find it.

Securing the Stock—Usually it is simply a case of enclosing a piece of swamp such as is referred to and you have stock already on it. Where more stock is wanted than is at present wild on the land it can be secured by trapping in box traps such as can be cheaply secured from stores or by using the style of trap later described. They should never be taken in steel traps in the hope of the animals not being harmed. A muskrat's leg is very tender and easily broken; anyway the animal would be so badly frightened it is doubtful if it would serve as foundation stock to use as a breeder. It is worth remembering that an animal of a certain locality will do much better when raised there than will stock that has been shipped long distances.

The easiest time to take them is the spring, March and April, which are the months of their first running season of the year. At this time their sexual instinct causes them to travel extensively and to lose their ordinary, every-day caution of being careful where they go.

As previously stated, the farming of muskrats simply resolves itself into a matter of fencing of a tract of favorable ground and allowing the animals to breed and carry on as they always have in their wild state; and later to trap them when their numbers have increased to such an extent as to warrant it.

Trapping—They will, of course, have to be trapped the same as they would were they not fenced in and considered as ranch animals. This being so, it is not out of place to make mention of an important point in trapping.

Muskrats are not hard to trap, but unless the right traps are used they are exceedingly hard to hold and take in the trap. owing to the peculiar and delicate construction of the legs, a point unnecessary to bring into detail here. Double or high-jaw traps must always be used in taking them for by reason of their design they take a much higher grip on the animal's leg than the ordinary brand, and a double or treble grip where the ordinary trap takes but one. I should strongly recommend the No. 81 Newhouse, 91 Victor, 91 Jump or No. 1 Giant for this reason.

Also use either the sliding pole or the sliding wire and so drown the animal directly it is caught. This will not only eliminate any possible losses, but will also prevent the captured animals alarming the others. These devices are more fully described in another chapter.

Breeding—The improvement of the muskrat's pelage has never been attempted; this could undoubtedly be accomplished by selective breeding. As muskrats would be practically wild, the only method of doing this would be to add new breeding stock of only the finest specimens, black muskrats, or the darker specimens are the more valuable and there is no reason why these could not be secured and added to the ranch, improving the stock generally and probably superseding the lighter colored variety.

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HANDSOME IMPORTED WRAP OF BLUE SQUIRREL

lined with blue satin and silver
brocaded panels

Shown by Miller Fur Company, New York
Posed by Miss Martha Mansfield

Photo by Tornello

(Courtesy of Fur Trade Review)

FRENCH LIFT FUR RESTRICTIONS

Washington—French restrictions on the exportation of raw fur skins have been lifted, according to a cablegram from Commercial Attache W. C. Huntington, at Paris, to the Bureau of Foreign and Domestic Commerce.



FRANK AGAR
Langdon, North Dakota

The above is a splendid likeness of Mr. Frank Agar of Langdon, North Dakota. Mr. Agar is a large wheat farmer and horse breeder but believes that the fox business is an industry which is sound and bound to grow. He has recently purchased a site for a fox ranch at Anoka, Minnesota, where he purposes to build a ranch in the near future. Mr. Agar made a visit to Michigan the latter part of January, spending quite a few days in the vicinity of Muskegon, making a survey of the industry and getting all the information he could relative to the breeding of foxes.

FUR FARMING AS A SIDE LINE OR A BUSINESS

By **HARRY E. BERRY**,
Kennebunkport, Maine

I am a farmer in the town of Kennebunkport, Maine, and have black and silver gray foxes as a side line. Have been interested in fur-bearing animals for a number of years and find it a profitable business. I am writing this little article so if any one is thinking of going into farming or the fox business it might encourage them to go ahead. Maine is an ideal spot for the business and success is *sure*, with the one who loves animals and will make a study of them. They are like many other things, they respond readily to kindness. I was a hunter, trapper and guide for a number of years before I took up farming, and learned much of the habits of fur-bearing animals. The United States Government is doing much for the fur farmer, so it is nothing one need be afraid of. If any of the brother readers care to write me I should be glad to correspond with them and help them in any way I could.

God's open country is full of health and wealth—for all.

MINNESOTA'S BIG GAME PROBLEM

By **HARRY J. LaDUE**

Unquestionably something should be done to save the deer and moose, and fortunately we have ample time before the next legislative session to tackle the problem from every angle. Many wonder why it becomes necessary to periodically change conservation policies, and incidentally conservation laws. The answer is simple. Conservation methods must be altered to meet with the change in conditions affecting the increase or decrease of wild life.

Conditions affecting the supply of big game animals in Minnesota have undergone many radical changes within the past ten years. The army of red-caps has increased from 17,546 in 1912 to 40,000 in 1921. Thousands of settlers have invaded the wilderness. The automobile and good roads has made accessible the innermost recesses of the deer and moose strongholds.

During this period the individual annual bag limit has been reduced from two deer to one. Cow moose and yearling bulls have been given absolute protection. The open hunting season has been reduced from 21 days to 11 days. Still the supply dwindles. What's to be done?

Various remedies have been advocated. Some wish to close the hunting season for from one to five years. Some favor alternate open and closed seasons. Others would solve the deer problem by the adoption of the "buck law."

It's the age-old story. Two roads—one easy, flower strewn, downhill, leading to oblivion; one hard, rocky, uphill, leading to accomplishment of purpose. For years the famous game states of the union have taken the easy road. To save the game supply they have prescribed one remedy—restrict the sportsman. During this period big game animals have become but a memory in many states. The one remedy plan has been a miserable failure.

The only exceptions are states that have solved their problem in a practical manner. Pennsylvania took time by the forelock and not only saved a breeding nucleus but actually increased their herd of deer. First and most important, the sanctuary plan has been developed to a high state of perfection in Pennsylvania. The state is dotted with game refuges, properly set aside, posted and patrolled. The center of each refuge is a natural game farm where only the game keeper can trespass. These restricted areas have a single strand of barbed wire, waist high, running entirely around them. The sportsmen enjoy the privilege of hunting on the thousands of acres of open territory surrounding the game breeding centers.

Many difficulties confronted Pennsylvania. The hunter's army was large, the deer territory small. It also became necessary to restrict hunting methods by providing shorter open seasons, smaller bag limits and the buck law. However, their success is due principally to the fact that they made their game refuges real sanctuaries, properly posted and patrolled.

Minnesota's problems differ greatly from those confronting Pennsylvania. The hunter's army numbers 40,000 and the hunting territory is as large as the entire state of Pennsylvania. The game warden force is small, pitifully small. The old-fashioned American custom of permitting settlers to live on the wild game while hewing out a home in the wilderness must be considered. The network of roads leading in and out of the woods form avenues of escape for law violators that would require an army of wardens to watch. Seventy-five per cent. of the kill is taken out by automobile. And we have with us—the wolf.

For the sake of Minnesota's big game, for the sake of coming generations of outdoor men and women, let's not take the easy road. Let's hold the season and the bag limit down to its present proportions. Let's protect female and baby ani-

mals, but let's not be lead into the delusion that the one adequate cure is self-denial. Let's not pin our hopes on restrictive laws that cannot be enforced to the letter without a huge body of game wardens. Let's not overlook the fact that wolves kill just as many deer as the sportsmen.

Let's give the sportsmen an annual opportunity to renew his health and forget his business worries by trips afield. Let's set aside game refuges in suitable locations and influence the legislature to provide ways and means of properly posting and patrolling them. Let's concentrate on perfect game protection and propagation in game sanctuaries. Let's by all means, heed to the cry of wolf!

RECEIPTS OF RAW FURS FOR NEW YORK SALE ARE HEAVY

Heavy receipts of raw furs during the last two days before the close of the consignment period have swelled the spring sale collection of the New York Auction Co. to such an extent, it is learned that seven or eight days of actual selling may be required for the disposal of the offerings.

The quality of the collection, according to officials of the corporation, appear to be high. The quantity, while evidently greater than that offered in February, is believed to be moderate enough to assure absorption.

To some extent, it is believed, the size of the local company's collection is influenced by the fact that no public auction of a general list of furs will be held in St. Louis this spring. The fact that some American shippers declared themselves dissatisfied with the returns on their consignments to the last auction of the Canadian Fur Auction Sales Co., Ltd., of Montreal, is also believed to have been a factor.

FUR PRICES UP 20% AT FOUKE SALE OF GOVERNMENT LOTS

Keen Demand for 17,561 Skins Said to Augur Well for Trade Generally

St. Louis, Mo.—After two hours' spirited bidding, the Fouke Fur Co., sold at public auction this morning 12,118 Alaska seals, and half an hour later 4,443 wolves and 1,000 other miscellaneous skins had been disposed of, thus ending what is regarded as a successful sale. All skins were sold for the account of the United States Government.

Col. Philip B. Fouke, president of the fur company, conducted the auction, which began at 9 o'clock and was ended at 11:30. The attendance was unusually large, about 80 buyers being present. Retailers attended in greater numbers than hitherto.

Buyers were eager to secure the seals and competition was a keen description. The prices ranged from 12½ per cent. to 30 per cent. higher than those obtained at the Government sale last September; but the general average was put at about 20 per cent. over that of the previous sale.

Prices for Seals Surprise

The average does not take into account, however, the prices realized for three and four, culls and rejects. The high prices brought by the seals were generally a surprise, being about 10 per cent. higher than had been expected at the opening of the sale. In opening the sale, Colonel Fouke said that it has come to his attention that reports had been circulated that some of the offerings were re-dyed seals. This he denied.

When writing the advertisers, please mention that you saw their advertisement in the AMERICAN FOX AND FUR FARMER.

THE FUR TRADE AND OUR WILD ANIMALS

(From "Kansas Fish and Game Bulletin No. 7," Issued by Kansas Fish and Game Department, Pratt, Kansas)

We recommended to our last legislature further protection to fur-bearing animals and a license fee for trapping. The legislature thought well of the matter, and accordingly shortened our trapping season fifteen days and provided a dollar per year trapper's license fee. Events have proven the wisdom of these acts.

Fur is never prime in Kansas before December 1, and seldom at that time. It is well known that there is an annual loss of 25 per cent. of our fur catch the country over on account of unprime hides. In 1919 one of the employees here on the hatchery sold 84 rat skins caught in November for \$72, and 56 caught the last of January, 1920, brought him over \$160.

A St. Louis fur buyer ran a full-page advertisement in some of our largest daily papers advising trappers not to trap before the fur was prime. Advertisements of this kind are not unusual; scarcely a fur dealer's price list that does not contain admonition against trapping too early, and likewise against taking fur too late in the spring.

Below is a sample clipped from a price list that came to hand only the other day:

Protect Fur-Bearers During Breeding Season

As soon as the breeding season commences in your section, we advise you, in the interest of the future welfare of the trapping industry, to pull up your rtraps and use your influence to get every other trapper you know to do likewise.

Every time you destroy a female animal during the breeding season you also destroy the young she would bring forth if she were allowed to live. One female destroyed during the breeding period may destroy a whole family of animals that would give you good returns next season.

Figure it out on a profit basis and you will never allow yourself to "kill the goose that lays the golden egg." Trap all you wish now, but pull up your traps as soon as the breeding season commences in your section.

Yet we have no end of trouble keeping boys from trapping before the season opens and getting justices of the peace to fine them for destroying their own property. Lots of good people can see no reason why the boys should not be allowed to do as they please. Trap early, when fur is worthless, and the animal is only killed in vain; trap late, when the animal is soon to become a mother, and thus exterminate the "goose that lays the golden egg."

The fur of our state is of considerable value. Ask the dealer in your town. He probably pays out \$20,000 to \$30,000 each year for fur. A farmer in one of the central counties of the state wrote me that he had trapped and sold off his farm enough fur to pay the original purchase price. Even at the prevailing moderate prices, there will be over \$500 worth of fur sold off the hatchery grounds this year. This is a crop that does not have to be planted or cultivated. Like the rains, it descends from heaven. It is all profit. Is it conceivable that we are so blind to our best interest that we will not observe reasonable and proper regulations to perpetuate this important and profitable asset? And it will become more and more valuable as the years go by. A few years ago rat skins sold for six to ten cents each. In 1919 they sold as high as \$5.50. They now sell at from \$1 to \$1.50. If our people would only understand that regulations regarding the taking of fur is not to repress or interfere with anyone in the exercise of any rights, but solely in the interest of preserving and continuing this great natural asset for the more profitable use of all our people, they certainly would assume a different attitude toward this department and its efforts in this matter.

In a recent bulletin of the New York Zoological Society, Doctor Hornaday has again rendered the cause of wild life signal service by drawing attention to the fast-approaching extinction of many fur-bearing animals, unless drastic steps are taken to stem the ruinous process of slaughter.

After the opening sentences of the bulletin the writer expresses himself as follows:

"While there is life there is hope. We are making the present effort in the hope that some remnants at least of the glorious Age of Mammals may be allowed to survive. But unless immediate steps are taken we believe that the fur-bearing animals of the world at large are doomed. The craze for "fur," for legitimate and illegitimate purposes; the insatiable demands of the trappers and fur dealers, and the mad rush at the counter for fur and pseudo-fur, constitute three irresistible forces with which no outside reform can cope and no outside conservation campaign can arrest. Even the present much reduced prices are highly destructive, and if they continue—as they surely will—then must be bid a long farewell to all the wild mammals whose skins can, by any stretch of the human imagination, be regarded as furnishing wearable fur."

OFF THE WIRE

Pertinent Paragraphs About People and Places —
News Notes of Interest

TWO RIVERS, WISCONSIN

The Two Rivers Fox Company of this place advise us that they recently had a terrible sleet storm in their locality but despite this their foxes are coming on in fine shape and they report that their ranch fences held out fine.

ZIM, MINNESOTA

Theodore W. Maki of this place advises us that he has 72 foxes at his ranch and that the first litter of pups were born March 12th, which he considers very early for that part of the country. He states that his ranch is in splendid condition and everything going on in first class shape.

FAIRFAX, MINNESOTA

We are just in receipt of word that August Olson, for a number of years game warden and sheriff, passed away recently at his home. Mr. Olson will be remembered by many of those who attended the Minnesota State Fair last year, because he was closely identified with the animal show connected with the State Fair.

PLATTSBURG, NEW YORK

Mr. J. S. Sterling of this place reports that his foxes are in very good condition this season and that the first litter of pups arrived March 24th.

KEESEVILLE, NEW YORK

Dr. Carl B. Hanson, of the Experimental Fur Farm at this place, has been called to Washington for a conference with the Bureau of Biological Survey, United States Department of Agriculture.

ALLEGAN, MICHIGAN

Mr. J. Ford Stratton, of the Silver Black Fox Co. of this place, reports that recently a storm raged in his locality and that some fear was felt for some of the litters of young foxes.

ITEMS OF INTEREST

By SAMUEL F. WADSWORTH, M. D. V.
Boston, Mass.

The following article briefly describes a few cases that may be of interest to fox breeders and were selected at random from my notebook.

Several years ago I received a letter from an eastern rancher, asking me what I thought had killed his foxes. Then he went on to tell me what he had done. Some one had told him that fleas were sure death to foxes; so when a litter of four young ones were three days old, he dipped the mother and young ones in some coal tar preparation, and then he wondered why they all died. He did not say anything about the male fox, so presume he lived.

Another similar instance. This letter was written by a man who had never raised a pup. He says: "My pens are built on swampy ground, and my foxes always have their young underground, and I think it is too wet for them. This year, when a female was about ready to whelp, I went in the pen with a shovel and filled up all the holes, but she would keep trying to dig others, so I kept filling them up and she got frightened and had all dead pups." He didn't say whether she finally had them in the ground or not.

Another man writes: "I was told to take the mother away from the pups when they were four weeks old because if I didn't they would be wild." I guess he thought they were old enough to forage, because he said he gave them plenty of horse meat, but they died.

This correspondent was a great believer in turpentine. He says: "When my little foxes were four days old, I gave them all a dose of turpentine, but I guess I gave them too much, for they all died the same day."

I have before me many interesting letters on methods of performing home surgical operations, and some of them are very ingenious and show what nature will do under trying circumstances.

Here is an instance of a fox having an abdominal puncture caused by the animal jumping on a sharp stump. All of the bowels were out, and the man says he did not even stop to wash them off, but put them back and sewed up the wound with cotton string. She made a good recovery and had four fine pups the next Spring.

In another case, a compound fracture was reduced and the leg wound with wire to act as a splint. The animal recovered and was scarcely lame.

I have seen some very bad cuts, tears, broken bones, etc., heal without any attention whatever, and in many cases it is better to let nature do the curing rather than to badly frighten the animal by constant dressing.

For all major surgical operations, ether should always be used. By so doing we avoid all shock by freeing the patient from pain and allowing a much more skillful technique. Ether when properly administered is a perfectly safe anaesthetic. I have etherized many foxes and have not had one fatal result from the use of it and have kept foxes under anaesthesia for one and one-half hours.

Post-mortem examinations are always of great interest and many strange conditions are found. All sorts of foreign bodies are found in the digestive tract. Only recently a fox was sent in for post-mortem examination with a history of convulsions for a few hours, then death. At the pyloric orifice of the stomach was found a 38-calibre bullet, badly mushroomed. Inquiry established the fact that the owner of this fox was feeding horse meat and had recently fed some necks. This bullet was the one used to kill the horse, and it had passed through the skull, lodging in the muscles of the neck. Being heavy and rough, after being swallowed by the fox it formed a pocket in the stomach, and could not be expelled either way.

The Public Shooting Ground-Game Refuge Bill

By RAY P. HOLLAND

(From Bulletin of American Game Protective Association)

THE Public Shooting Ground—Game Refuge Bill is still in the hands of the Committee on Public Lands and Surveys in the Senate and the Committee on Agriculture in the House. It is to be hoped that the bill will be reported out of committee in the near future.

The sportsmen of America want the Public Shooting Ground—Game Refuge Bill enacted into law. The opinion of the state game commissioner of any state reflects the views of the major portion of the sportsmen in that state. The state game officials are the men in this country best posted to express an opinion on game legislation. They know what is necessary to care for wild life. Their experience with state laws makes them competent to detect immediate flaws and unfavorable features in conservation legislation.

The American Game Protective Association has taken a poll of the state game commissioners of the United States to learn their views on this measure. Copies of the bill were sent them and they were asked to write the Association their opinion of it. They were asked to give their reasons for favoring the bill and to tell why if they oppose it.

' State Game Officials Endorse Bill

At the present date, game officials from thirty-two states have endorsed the Public Shooting Ground—Game Refuge Bill in enthusiastic terms. From four states have come minor objections which do not in any way criticize the fundamental principles of the bill. Game officials from only four states have come out flat-footedly as opposed to the measure. Two states have no game commissions and the others have not replied to inquiries sent them.

Surely this is a wonderful showing, for were there anything fundamentally wrong with this proposed law, many of these men would have seen it at once and centered their objections on the weak spot. Of those opposed, none have set forth any tenable argument and no two base their objections from the same viewpoint.

One commissioner argues that this bill takes away the rights of the states. Such an assertion is without any basis of truth. This measure is really supplementary to the Migratory Bird Treaty Act and does not confer any additional powers upon the Federal Government. It simply provides the only means of financing the necessary work to carry out the purposes of the treaty with Canada—the preservation of our migratory birds.

No Additional Authority Granted

The Migratory Bird Treaty Act vests in the Federal Government the power to state how and when migratory game birds may be killed. The Public Shooting Ground—Game Refuge Bill says that these birds may be killed only after the gunner has taken out a Federal license costing one dollar. The money obtained in this manner will be sufficient to protect properly both migratory game and insectivorous birds, to preserve marsh areas so necessary to wild waterfowl and to set aside public shooting grounds. The passage of the Public Shooting Ground—Game Refuge Bill will insure the perpetuation of the sport of wild fowl hunting.

Another commissioner contends that his state is perfectly competent to set aside refuges and public shooting grounds when needed and that his department can take adequate care of the migratory birds when within the borders of his state. Per-

haps this is true, but the fact remains that a very few states have been sufficiently progressive to establish bird refuges and public shooting grounds, and that the Migratory Bird Treaty Act was made necessary because the majority of the states did not take the necessary action to protect game birds that only remain a short time within their jurisdiction. State legislatures will give protection to their local game, but the old feeling that they are protecting something for some one else enters in when legislation is requested to protect migratory species.

One official contends that the idea embodied in the bill of furnishing public shooting grounds and game refuges is paradoxical. This gentleman either has not studied the measure carefully, or he is not familiar with the habits of waterfowl. Marsh areas may be set aside as public shooting grounds and by so doing the territory so necessary to these birds will be preserved. Of course, shooting will be permitted only during the open season and such territory will act as a refuge during eight and one-half or nine months of the year. Also certain areas on each public shooting ground will be set aside as permanent refuges on which shooting will be prohibited the year round. Anyone familiar with the habits of waterfowl knows how quickly these birds take advantage of a protected area.

Another objection from a state game official is that this bill will cut down the revenue of his department. It is the belief of those who have studied this point that the Public Shooting Ground—Game Refuge Bill will increase the revenues of the states. A Federal license will not be valid unless accompanied by a state license where same is required by state statute.

Will Aid State Game Departments

Many gunners will run the risk of shooting without a state license who would not dare to take the same chance with the Federal Government. Also, the fact that Federal wardens are actively in the field checking up the gunners will tend greatly to increase the license sales in the different states.

In a report on the development of unused lands of this country, transmitted in a letter from the Secretary of the Interior under date of October 6, 1919, is to be found the following:

"In many places the swamps and overflow lands serve useful purposes as reservoir sites to diminish the volume and intensity of the floods of the drainage basins in which they occur, and each one should be carefully considered as to the advisability of continuing its services and improving its efficiency for these functions. The regulations of streams is important from many points of view. If our streams could be made to flow with comparative regularity instead of in great flood waves it would terminate destructive floods that cause such havoc and loss of life. . . . Every scheme for the drainage and reclamation of swamps and low-lying river bottoms should therefore be carefully considered in its relation to the country at large."

Waste Land Where Canada Geese Breed

The Association is constantly in receipt of letters telling of the drainage of lakes and marshes with disastrous results. Mr. Carlos Avery, game and fish commissioner of Minnesota, recently stated that the last great breeding ground for Canada geese in his state had been drained and in place of two beautiful lakes, teeming with fish and covered with waterfowl, and a large marsh area adjoining which furnished homes for countless

numbers of fur-bearing animals, there is to-day a tract of waste land.

Mr. Avery states that it is possible that a portion of the territory may be available for agricultural purposes, but that one entire lake bed is of peat formation and can never be farmed.

Below are printed excerpts from a letter from Mr. E. P. Modin, cashier of the Security State Bank of Middle River, Middle River, Minnesota, which is a fair example of the reports the Association has received from many sections of the country and which furnishes a good picture of part of the section referred to by Mr. Avery, known as Thief Lake.

"When Thief Lake was drained several years ago by the establishment of Judicial Ditch No. 21 system of drainage,

flood rains of July came that year his entire crop was lost and in two and a half hours the lake was running over its banks. Of 3,000 acres in crop that year, not a kernel was threshed.

"In 1920, the whole of the north part of the lake was drowned out again and the crop raised on the south part was of no value. This year there are a few spots of better crop, but the average is far below the grain raised on regular farming land and returns will be of no particular value. Lands adjoining have not been benefited at all by the drainage of Thief Lake. The project intended for reclamation has proved a failure. The ditch running through the lake has filled in and when waters from rains or adjoining ditches come into the lake, the banks are washed back into the ditch channel.

"In giving you this information, I do so from an unbiased



Photograph by Rup P. Holland

This Marshy Lake Produces Waterfowl, Fish and Fur. Drained, at Best the Land Would Be No Better Than the Adjoining Territory Which is Only Good for Pasturage

(Courtesy of Bulletin of The American Game Protective Association)

Marshall County lost its only lake. Those who were instrumental in getting this system No. 21 through now realize that a bad mistake has been made and that there was no gain from having this lake drained, but that it really was one of the heaviest losses.

"In the first place, we have lost one of our best game preserves in the state. The nature of Thief Lake was such that migratory birds gathered in abundance on its shores and water and there was at all times plenty of game, even moose and deer, in its vicinity. In the second place, there is a great loss because of the body of water itself. It has been discovered of late that deep wells on farms and in towns, not only here but in western Marshall County as well, are drying up and the water supply diminishing. This loss has been laid directly to the drainage of Thief Lake.

"As a farming venture, the Thief Lake bottom has proved of no worth in that the soil is very light, consisting principally of sediment of no productive value, and in places of quicksand and blow sand without fertility. There have been thousands of dollars lost to riparian owners who have attempted to farm the lake bottom. In three years' time there have not been crops raised of sufficient amount to pay back the seed put into it.

"In the year 1919 one farmer in particular had 700 acres in crop. He had worked four tractor outfits all spring and had put in seed costing him as much as \$3.00 per bushel. When the

viewpoint. I am not a hunter and I am not a farmer. But I have watched results from the No. 21 drainage system since it was built and I have found that the drainage of Thief Lake has brought on a loss amounting to many thousands of dollars in the last few years. Then there are losses which cannot be measured in dollars and cents. Something should be done to restore Thief Lake to its original intent. Some legislation under Government or Federal action should be instituted to bring this about.

"An automatic dam could be placed at the outlet of this lake to control the water-level. If a petition would be of any value, I should be glad to circulate one to bring on action. I am sure that every farmer near the lake, would sign that petition. Every farmer who has attempted to farm the lake has lost. Every citizen and nature loving man, woman and child has lost a lake."

Were the interests of the country at large considered in the drainage project that left a condition such as described by Mr. Modin?

The Horicon Marsh Sacrificed

State Conservation Commissioner W. E. Barber of Wisconsin at a recent meeting of the International Association of Game, Fish and Conservation Commissioners at Allentown, Pennsylvania, told of the draining of Horicon Marsh in Wisconsin. This tract contains thousands of acres and was for-

merly one of the greatest wild-fowl breeding territories in the United States—an area producing thousands of muskrat and other fur-bearing animals each season.

Mr. Barber stated that a corporation gained control of this territory and drained the marsh, and that to-day it has absolutely no value for any purpose, being a vast area of waste with not one acre cultivated. The Horicon Marsh would to-day be in its original form had the interests of the country at large been considered.

At this same meeting many commissioners from other states told of similar conditions existing in their states.

In reading reports of the United States Reclamation Service, one is startled by the amount of money spent for drainage and the frequent recurrence of the words, "All of the area is in private ownership." In such cases are the interests of the country at large considered?

Small Areas Important

However, most of the damage done to water-fowl by drainage has occurred where small lakes and marshes have been drained by private enterprise. Such areas should be purchased at the earliest possible moment. When a group of farmers own the land surrounding a small lake, you cannot expect them to lend a deaf ear to the drainage promoter who pictures the lake bed dry and growing grain for them.

"Nut Growing," a book written by Dr. Robert T. Morris and recently published by the Macmillan Company, contains the following arguments against unwise drainage:



WHITE SAND—PART OF A TRACT OF 10,000 ACRES

in the Kankakee District Plowed and Planted to Rye in 1921. Nothing Grew.

(Courtesy of Bulletin of American Game Protective Association)

"Doubtless there are some swamps and wet lands which may be drained to advantage, but legislators must carefully avoid granting privileges carelessly in the matter. In some of the older countries of the world incomes for large districts

depend upon water plants, fish, and other products of wet lands artificially made for the purpose. In this country we have already caused irreparable damage by draining lands of the sort which peoples with greater experience are engaged in constructing.

"Government estimates of wet lands in the United States capable of being drained and made ready for tilling, place the figure at sixty millions of acres. Reclamation of this wet land would be little short of criminal in localities where the wet lands at lesser expense could be made ready for crops belonging to such lands and sometimes bringing in larger income than tilled land crops. We have already thrown away much of our own rich heritage in wet lands. What would people do for bread in countries in which bread is made from the water chestnut, if the American drainage idea were to strike these countries like a blight? The water chestnut is already acclimated in America as far north as the Merrimac River in New Hampshire. Hundreds of square miles of Oriental wet land are devoted to the raising of the lotus—a plant of which every part is eaten. We have not as yet made use of a nut which was employed by the Indians—the wankapin or water chinkapin—but the time is coming when we may regret the loss of lands upon which this food supply may be freely grown.

"Fish breeders and crawfish breeders of northern Europe often support their families from shallow, artificial ponds of ridiculously small dimensions.

"How many tillable acres have we in America that can compare favorably as to income with Maryland musquash leaseholds with delicious musquash meat now selling at thirty cents per pound and skins at more than three dollars each? Some one will reply that the present market price for musquash meat and fur is a war price, but so is the present cost of beef and wheat. How many tillable acres bring returns like the shallow waters of terrapin breeders? Wild-fowl breeders are already entering their protests against reclamation projects. The very word "reclamation" is a joke when we have so many millions of acres of tillable land that is wasted or improperly employed and when two or three kinds of wet land products can be profitably raised at one time upon one wet acre—water nut crops already being standard food crops abroad.

"Irrigation projects in some localities may be quite as untimely as drainage projects in this period of our own history. Irrigated land will wear out precisely like other land and we are simply postponing the day when first-rate agriculture will prevail. First-rate agriculture will consist in raising forty bushels of wheat to the acre upon eight-acre land as is done at Rothamsted in England. Crops grown upon irrigated or drained land belong to second-class agriculture and first-class engineering. The farmer who boasts of his great crops raised so easily is the rooster that crows when a hen has laid an egg. The engineer laid the egg. The large immediate returns are the large immediate returns of a man who puts his hand into another man's pocket.

"An unfortunate part of irrigation projects often lies in the fact that beautiful tracts of land are destroyed unnecessarily. So long as good land may be purchased at less than a dollar per acre in some parts of the South it is not yet time for us to carry drainage projects and irrigation projects into territory where the result will simply extend second-rate farming and first-rate engineering.

"Individuals and governments loan money for draining and irrigation projects. If the same amount of money were to be devoted to the work of our agricultural colleges the world of to-morrow would be benefited. Individuals in particular and the present generation in general profit by our wasteful promotion of second-class agriculture. In the words of the poet they ask, 'What has posterity done for me that I should do anything for posterity?' They are to shift the cost of engineer-

ing plants to a later generation when the time comes for plants of farmers to need more fertilizer. On the whole, to-morrow's population is to be the loser from such drainage and irrigation projects of to-day as are untimely.

"According to the 1914 report from our Department of Agriculture forty per cent. of the land in the United States is non-tillable. . . . Only twenty-seven per cent. of the tillable land in the United States is actually under cultivation, but if we follow the same methods of plant and stock raising in the future it will not be long before one hundred per cent. is occupied. As a matter of fact, intensive cultivation of twenty per cent. of the tillable land now occupied could be made to produce so much more than it does under present methods that we need have very little anxiety about the need for bringing one more

prevented had not certain swamps been drained. The Public Shooting Ground—Game Refuge Bille, essentially a sportsmen's bill, can be viewed from many angles and every angle is favorable to the country at large.

RE-ELECTED FUR ASSOCIATION HEAD

Samuel N. Samuels, president of the Associated Fur Manufacturers, Inc., has been re-elected to serve a second term.

Besides Mr. Samuels the officers for 1922-1923 are: Vice-presidents, Abe Gottlieb, of Gottlieb Bros.; Irwin Heilbronner, of Kaye & Einstein, and H. Leonard Simmons, head of the firm of the same name; treasurer, Harry Aron, and secretary, Charles Cohn, of Scharfstein & Cohn.



Photograph by Dr. Harold C. Bryant

The Last Great Breeding Ground of the Canada Goose in Minnesota Has Been Drained
(Courtesy of Bulletin of The American Game Protective Association)

acre of tillable land under cultivation with ordinary crops for some time to come.

"One may ride for mile after mile upon the railroads through old settled parts of New York and New England and see on every side worn-out sheep pastures supporting only woodchucks and grasshoppers, that could be made to yield good income. On some of the western prairies one may look clear to the horizon and see only French weed, thistles, and wild mustard where once was corn and waving grain—the land now practically abandoned because farmers would not change their crops or do subsoil plowing. While this state of things remains it is all wrong to open up more unimproved land. We are simply increasing competition between men engaged in the lower planes of agriculture."

The Public Shooting Ground—Game Refuge Bill is a sportsman's measure. He is willing to pay a license fee to protect the game from which he derives his sport. In so doing he finances a law that is of paramount issue to every citizen of this country. Outdoor sport means health of body. Health of body means health of mind and virility, resulting in a nation of strong, clean-minded men.

The conservation of marsh areas means the saving of one of the nation's greatest sources of food supply. Such areas are essential in maintaining the underground water-level so necessary to successful farming. Great forest fires would have been

IS THIS A FOX YEAR?

The belief seems to be gaining strength that 1922 will go down in fur history as a strong fox year. Foxes of different varieties have had their share of the demand in the raw fur market, while among manufacturers and retailers may be heard the assertion that these scarfs have captured some of the trade which had been anticipated for stone marten, baum marten and Hudson Bay sables.

Discussing the sale of foxes this morning, an official of a large New York house said, "If we had attempted to set down on paper at the beginning of 1922 what our purchases for spring would be like, we should have ranked stone marten first, with minks next, then squirrel, then foxes. White foxes would have found a place somewhere near the bottom of the list.

JUSTICE DONE

Word has just been received at this office that John Affolter and John Wurm, who were charged with breaking into the fur establishment of Stuebe Brothers on the evening of February 22nd and appropriating a quantity of mink and rat fur, were severely dealt with by the presiding judge, one of the boys receiving a sentence of from three to five years and the other one from ten to fifteen years. This will probably have a tendency to stop operations of this kind in that locality for some time to come.

MINNESOTA GAME PROTECTIVE LEAGUE SEVENTH ANNUAL CONVENTION

The League will hold its seventh annual convention at Walker on Leech Lake, June 22nd to 25th. Mr. Ed. L. Rogers, former gopher football star and president of the Walker Rod and Gun Club, has called several meetings of his organization, appointed convention committees and laid out a tentative sports and entertainment program.

Secretary La Due of the League has made arrangements with Mr. Jack Miner, the famous Canadian birdlover, to address the convention at a banquet on the evening of June 23rd. Hon. Ray P. Chase, State Auditor, will outline a plan for a system of state parks. Other speakers of state and national prominence will be on the program.

The convention this year will center largely about a big program of sporting events. These include bait casting, trap shooting, canoe races, swimming races and other special events.

Convention guests will find ample accommodations at the splendid resorts along the shore of Leech Lake near Walker. As usual the gathering will be in the nature of an outdoor encampment and beautiful camp sites will be available on the shores of Leech Lake.

GOOD NEWS

J. P. Duffus of New York writes that fourteen litters have already arrived at their ranches in New York and Pennsylvania. They expect that this year will be a record for Duffus Diamond Quality ranches in the U. S. A.

CORRESPONDENCE

Chippewa Falls, Wis., March 22, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

You deserve the highest commendation for your efforts and anyone in doubt regarding the principals of the "AMERICAN FOX AND FUR FARMER" as being for the American fox breeder is doing you a great injustice.

Yours very truly,

CHIPPEWA SILVER FOX CO.

F. X. Schumaker, Secretary.

Long Siding, Minn., April 11, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

You are putting out an exceptionally fine paper and it should be read every month by all interested in fur farming.

Yours truly,

IRA M. SMITH,

Cashier, Long Siding State Bank.

St. Joe, Mo., March 23, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

You are publishing a dandy magazine, and I hope you keep up the good work.

Very truly yours,

C. R. HANNUM.

Allegan, Michigan, March 30, 1922.

American Fox and Fur Farmer
Utica, New York

Gentlemen:—

Sometime ago I wrote you to the effect that I did not receive my February number. You very kindly assured me that another one went forward to my address. I guess it has gone to hunt the first one, as it never arrived. I know a good thing when I see it and do hate to miss an issue. Try it again and charge any expense to me.

Yours respectfully,

GEORGE R. BARNUM,
Box-Alder Silver Black Fox Farm.

FUR TRADE READY FOR SPRING SELLING

Salesmen Beginning to Cover Territories—Early Price Levels Are Well Maintained—Heavy Garments at Distress Prices

Among raw fur dealers and manufacturers the explanation made regarding the present lessened consumption of furs is attributed to the prevailing cool weather and a late Easter. The vogue for neckpieces depends upon warm days, the expectations of the trade hanging by that small thread. Prices are reported as remaining firm and on a par with quotations ruling last spring.

Neckpieces are the principal articles of spring fur consumption. Coats and capes are being sampled to some extent, but their popularity will not figure in the expected sales total.

There is a disposition in some quarters of the fur industry to describe the present buying lull as a sort of buyers' strike. To allay any misapprehension that may exist in the minds of buyers who may be disposed to credit the rumor a raw fur dealer made the following explanation:

"At this time of the year a large amount of inferior fur reaches the market. The late kill may not be as rich or it may have depreciated, due to the animal lying in its burrow too long through the winter. There are many fur buyers who do not know the variations in quality that make for price fluctuations. Such a buyer offered either opossum, fox or some other skin at prices radically below the market is apt to imagine the market levels have suffered.

"First class skins have maintained their prices remarkably well. A few furs are down in price, as would be the case with an unseasonable item in any stock. More reasonable goods have actually strengthened their position."

Buyers are hoping for pleasant warm days to stimulate active fur sales. The next three weeks will decisively tell the story as to whether the fur trade is justified in being as sanguine as it is. At the moment the heavy garment season is at an end and the small piece season not yet begun. The fur trade being a highly sensitive industry is awaiting with some concern the attitude of the consumer.

There is plenty of evidence among fur manufacturers that money is tight for the time being. Retailers are not interested in full sized garments just now and small manufacturers in ready need of cash are selling to such factors in the trade as can afford to buy from them. It is admitted that such garments as change hands sell at prices perhaps two-thirds of what they will bring in the fall.

The back and forth trading now going on in the trade is one of the causes for the assumption of lower price levels ruling. The particularly dull experiences of some small operators is causing low priced manufactured goods to seek buyers with ready cash.

A SUCCESSFUL MINNESOTA RANCH

Theodore W. Maki of Zim, Minnesota, breeder of high grade black and silver foxes, advises us that he now has on his ranch seventy-two foxes and that he has had a most successful year.

The first litter of foxes were born March 12th, which he considers very early for that part of the country.

The photographs above are of foxes now on his ranch. Mr. Maki has a most modern equipment, including a gas light-

ing system in the ranch building, gasoline motor running the bone grinder, automobile truck, and everything that goes to make up a most modern equipment in every way.

Mr. Maki is a constant reader of the "AMERICAN FOX AND FUR FARMER" and in a recent communication to this publication stated that the article in our December number on "Food Nutrition in Foxes" was worth many times a yearly subscription to the publication.



ALASKA MALE FOX, FIVE YEARS OLD
Owned by Theodore W. Maki, Zim, Minnesota



MONI, REGISTERED FEMALE, DARK, THREE YEARS OLD
Raised two litters. Owned by Theodore W. Maki, Zim, Minnesota.

Notes of the National Silver Fox Breeders Association of America

By J. E. SMITH, Secretary

WORD comes from all parts of the Country that the present season promises to be one of the best in years, not only for a bumper crop of pups but business conditions are very much improved and the demands upon the Silver Fox Breeders for stock are earlier and more pronounced than at any time heretofore. These favorable conditions may be due to a number of causes. The publicity the industry has been given thru the magazines devoted to it; the effects of the last fox show; the realization by men of means that this industry is legitimate and one that is as sound and far more profitable than most businesses; the more intelligent methods of feeding, breeding, treatment of diseases, etc., all have played a big part in making the business less hazardous.

Outside of the great amount of publicity given the industry thru the columns of this splendid magazine, what part has the Association played in helping to stabilize the industry and put it on the map as a sound and profitable business in which people from all parts of the country are becoming interested? Do fox breeders generally realize the good effects of such an organization? Would there be as much confidence in the future of the industry as there is had it not been for the Association? Just think this matter over and then ask yourself if you have been benefitted by the Association in any way.

If you are a prospective buyer you are more likely to purchase stock from a member of an association founded upon the right principles than you would be to purchase from an outsider, because you know that if you don't get a square deal the association will see to it that your grievances are redressed or else take action against the member that will make it difficult for him to continue in business. A number of cases have already been looked into and settled satisfactorily without having to call upon the courts. That is one of the main objects of the Association—to keep the industry clean.

This association solicits only such members as can be highly recommended as reliable and honest. If we have any now that are not conducting their business on the square the officers and directors want to know it. We want the National Association conducted in such a way that when a prospective buyer sees the statement, "Member of National Silver Fox Breeders Association," on a letter head he will not need to ask for further references nor recommendations.

An association is a necessity in building up the Industry and keeping it clean, and while speaking of the need of an association let us remark right here that *there should be but one big Association in the United States*. We have voiced that sentiment so many times, however, that it may be somewhat threadbare, but we are going to keep pushing it until something is accomplished. The National Association, although the largest in the United States, has been advocating the amalgamation of all associations into one big body for a long time, even offering to meet the others more than half way and to make any number of concessions in order to bring the splendid idea to a head, but as no acknowledgment of our requests has ever been received we are at a loss to know what steps to take further. We are pleased to note that the editor of this magazine has been advocating the same thing, and we believe that he would be more than willing to devote space in the columns of the magazine to any fox breeder who has suggestions to offer that may help to bring about the desired end.

In advocating one big association the National does not mean to discourage the formation of local associations, in fact they are quite necessary, but let them operate under a charter issued by the National Organization. Dr. Dearborn says there should be local associations to attend to local affairs, as taxation, trespass laws, and to gain a larger influence in Congress. Ten State organizations can swing about ten times as many congressmen as one National organization. But he believes there should be one big association to maintain the herd book and take care of other matters that would naturally come under its supervision.

Let's all "Get Together" on this proposition and see what can be done. With one central body as the supreme head in the Industry, one Herd Book, one set of By-Laws, one system of registration and scoring for advanced registry, one big Show and fur sale each year there is no limit to what might be accomplished.

For the benefit of those who have not a clear idea as to the requirements for registration of foxes we wish to explain here.

A fox to be registered in the herd book of the National Association must be from at least three generations of Silver Ancestors. Its parents and all its kin must be known and proven to be pure black or silver and a record kept by the breeder of the number and sex of each litter, date and place of birth, death, sale or transfer of each.

An adult fox whose ancestry is unknown, that is pure silver or black, and which for three generations of breeding has always produced pure black or silver offspring may be registered. For each fox registered under the rules and regulations of this association a certificate of registration may be obtained. These certificates show the name and registration number of the fox, the sex, color, date of birth, breeder, owner and its ancestors for three generations. These certificates show two generations more than is shown by certificates issued by some associations.

A fox to be registered in the Advanced Registry must score at least eighty-five (85) points when judged by the authorized inspectors of the Association. All Advanced Registration certificates shall be signed by the inspectors making the examination and countersigned by the secretary. These certificates, besides showing pedigree of the fox, also show the number of points scored, the tattoo markings in both ears, the number of toes in the same litter, date inspected, place inspected and the date recorded. It also gives the color of the Sire and Dam, which is of some value in the matings.

The ordinary registration fee is \$2.00, and the Advanced Registration fee, \$5.00. Breeders having twenty or more foxes entered in the Advanced Registry at one time will be allowed a discount of twenty per cent.

A committee to amend the by-laws will meet Tuesday and Wednesday, April 4th and 5th. Undoubtedly a number of changes will be made at that time. One of the questions that will be considered is that of setting some definite date after which no foxes will be accepted for registration unless they are from parents that are already registered. So far the Association has been registering all foxes that could be proven to be pure silvers for three or more generations. There is so much chance for error in this method, however, that it may be best

to discontinue it as soon as every breeder has had an opportunity to get his foundation stock registered.

The association has been advising prospective buyers to purchase Advanced Registry foxes when securing their foundation stock. We believe that an 85 point fox is none too good for foundation stock and that the buyer is entitled to that quality of stock at the prevailing prices. The breeders who are advertising advanced registry foxes for breeding purposes will continue to do business after the others have gone the length of their rope. We urge every one to get busy and take advantage of the opportunity to get their foxes scored at the earliest possible date. Of course they cannot be scored now, but foxes may be guaranteed to score 85 points when mature, and if they fail to do so they may be replaced with foxes that do. Some breeders are doing that now. What would it mean to a breeder to be able to advertise nothing but advanced registry foxes on his ranch? Would he get any business? He would, and he could get the price too. The men of means who are going into the business to-day want quality.

The increased amount of business the association is now doing and the increased efforts to promote the industry has made it necessary to secure the full time services of a stenographer. We know she will earn her money, as the making out of registration certificates alone will require half her time if not more. Our new offices are mighty fine and are pretty well equipped. Our latest addition is an addressograph machine which will take care of our mailing list of over seven hundred. With this and our mimeograph machine we are in a position to keep our members pretty well informed as to what takes place by means of circular letters that are sent out regularly. The overhead expenses are considerably more than they were six months ago, but so far we have been able to keep far above board, thanks to the splendid co-operation of our members. One of the directors made the remark at one of the meetings recently that some day the National Association will have a building of its own where it will have a large office force and conduct an annual fur sale that will attract buyers from all parts of the country. He said it might be a year or so before it materialized, so don't get nervous.

At the regular meeting of the Association to be held Wednesday, April 5th, a motion picture reel, showing the Sheffield ranch and foxes will be run for the entertainment of the members.

The By-Law committee will also report at this meeting. We expect a number of out of town members to attend.

Mr. John A. Lea is spending a few days in the vicinity of Muskegon.

Mr. A. L. Williams has just returned from California, where he has been spending the winter.

Mr. E. M. Robinson, President and General Manager of the United States Silver Fox Farms Corp., Spokane, Washington, has made application for the registration of a number of his foxes. He enclosed a large photograph which was a bird's-eye view of his ranch. This will be framed and hung in the office. The secretary would like to get as many good photographs of ranches as he can to decorate the office with. These should be quite large to show up well.

We are preparing a map of the United States which will show the locations of all the Silver Fox Ranches we ever heard of. This will be hung in the office and should be interesting to study. Any breeder wishing to have his ranch shown on this map will please write the secretary and give the exact location so that it may be indicated by colored markers.

The Association is endeavoring to compile statistics relative to the industry and would like to have the following information from every ranch in the United States: Name of

ranch; address; date started in the business; number pairs started with; breed or strain of stock; size of ranch and number of foxes at present. If you care to state the average increase each year and the amount of business you have done it will be appreciated and will be considered strictly confidential. We believe that with some definite statistics such as suggested above we will be in a position to be of some service to everyone in the business. We would like to know the problems you are confronted with, and the way you meet them. We want to be of service. That is what we were organized for. We need your co-operation in order to be of the greatest possible service and we trust you will lend your support in every way possible.

The first volume of the Herd Book of the National Association will be published within a very short time. In this volume will appear the first thousand foxes registered. All who want a copy of this first volume please notify the secretary.

In its December, 1921, Bulletin the Muskegon Chamber of Commerce devoted one-half of the space to the Silver Fox Industry. These were so well gotten up that the association ordered 3,000 extra copies for its own use. These have been sent to all parts of the country and our supply is just about exhausted. We believe that this has done a great deal of good in promoting the Industry. We also had 2,000 extra copies of the show catalog printed. These too have been distributed throughout the country. These are being sold in quantities at 10 cents each and reports have been received that a number of sales have been made as a direct result of their distribution.

At a special meeting of the Board of Directors held Wednesday, April 5th, 1922, it was voted unanimously that C. T. Dryz be expelled from the National Silver Fox Breeders Association.

A motion picture of the Sheffield Silver Fox Ranch was shown at the regular meeting of the Association Wednesday evening, April 5th. This was very interesting.

The by-law committee made a report of their recommendations for amendment of the present by-laws. Considerable discussion with very good suggestions followed throughout the report and it was voted that the committee meet again and submit a further report at the next regular meeting.

Out of town members present at the meeting were: Arthur Schleicher, Lake City, Minn.; J. Ford Stratton, Allegan, Mich.; Guy G. Henry, Conover, Wisconsin; W. H. Wells, Spring Lake, Mich.; George Winchester, Grand Rapids, Mich.; Martin Moon, Brunswick, Mich.; F. W. Cole, Big Rapids, Mich. Mr. W. H. Church of Hart, Mich., who has recently applied for membership, was also present.

In closing we wish to again call your attention to the need of one Big Association for the United States. Let's "Get Together" and see if we can't bring this about. The National Association is for it to the limit.

The regular meeting of the Association Wednesday, May 3rd, will be held in connection with a banquet. There will be a matter of considerable interest to the members come up at that time. Make every effort to be present.

HUDSON'S BAY OFFERINGS HEAVIER THAN LAST FALL

The quantities of furs which the Hudson's Bay Co. will sell at public auction beginning May 1, as announced, are considerably heavier than those placed on sale by the same company in January. The list, too, is more complete. The offerings are to be as follows:

1,750 bear, 19,000 beaver, 55,000 ermine, 600 fisher, 1,500 cross fox, 12,000 red fox, 250 silver fox, 9,000 white fox, 5,000 kolinsky, 30,000 Persian lamb, 1,300 lynx, 4,500 marten, 200 baum marten, 400 stone marten, 30,000 mink, 200,000 muskrat, 1,350 otter, 1,000 raccoon, 950 Russian sable, 1,250 seals, 1,150 skunk, 4,000 wolf, 60 wolverine.

BLUE FOX RANCHING ON ALASKAN ISLANDS

Many Fox Farms Have Been Started on the Islands in Frederick Sound

(From "Fur Trade Review," April, 1922)

During the past few years various islands along the Alaskan coast have been leased to individuals for the purpose of fur farming. Quite a number of the ranchers leasing these islands are endeavoring to raise blue foxes. Some of the islands come under the jurisdiction of the Department of Agriculture and leases are obtained from the United States Government, while other islands do not come within the so-called National Preserves and, in a few instances, have been bought outright by enterprising trappers and ranchers.

The mail steamer that sails from Juneau picks its way among these islands and will stop at any one of them for passengers. Practically all of the ranchers on these islands are engaged in the raising of blue fox. The country is wild and, naturally, very thinly populated and the woods abound with game, including brown bear, deer, ducks, geese and grouse, to say nothing of splendid game fish in abundance in the Sound.

The feeding of the blue foxes is greatly facilitated by the plentiful supply of fish, which can be obtained in quantities at



BLUE FOX PUPPIES WELCOME THE RETURNING FISHERMAN

(Courtesy of Fur Trade Review)

In the February issue of FUR TRADE REVIEW we had much pleasure in publishing some photographs which we have received from a rancher on Pybus Bay. These photographs showed a group of blue fox pups that have been so thoroughly domesticated that they play around the ranch-house with the fearlessness of puppy dogs.

In a recent letter which we received from C. E. Zimmerman, part owner of the ranch, he tells us that he is located on The Brothers Island, which lies at the north end of Frederick Sound. Frederick Sound is about 100 miles south of Juneau.

Pybus Bay is in The Brothers Island.

The Brothers Island is one of the group of islands comprising approximately 3,300 acres. The highest elevation on the island is 649 feet. Mr. Zimmerman states that there are six other island ranches within fifteen miles of his place and that practically all of the islands are heavily timbered with hemlock and spruce.

fishing villages within five miles of practically every ranch. Mr. Zimmerman states that the food consists partly of dog salmon, which the ranchers smoke for Winter feed. During the puppy time, which occurs from the last of April on, the foxes are given cooked mush, fish, cereals, shorts, etc. The pups are generally very good feeders after the sixth week. The pictures illustrating this article show how very tame and chummy the puppy foxes become. The foxes shown in these pictures are part of a litter of twelve that were raised near the ranch-house by a one-year-old mother. Mr. Zimmerman states that they will come into the house and can be handled freely. They eat out of one's hands and some of them come in and sit up and beg for scraps; one in particular had a habit of sitting in a rocking chair and eating hot cakes, another one was in the habit of scratching on the door of the house to be admitted.

From what Mr. Zimmerman tells us it is quite apparent that the raising of blue foxes along the Alaskan coast has met



GROUP OF FIVE-MONTHS-OLD BLUE FOX PUPPIES
playing around the knees of their foster-mother.

This photograph was taken on Brothers Island, Pybus Bay,
Frederick Sound, Alaska

(Courtesy of Fur Trade Review)

with much success and in a short time there is no doubt that many of these island ranchers will be in a position to market considerable quantities of blue fox pelts. The climate and surroundings are ideal for fox ranching and in a few years' time it is felt that these island ranchers of Alaska will progress as rapidly and successfully in the raising of blue foxes as the Prince Edward Islanders of Canada did in the raising of silver foxes.

MANY JACKRABBITS ARE EXTERMINATED

Oregon Agricultural College, Corvallis, Ore.—Jackrabbit poisoning campaigns in Lake, Malheur, Morrow and Umatilla counties resulted in the extermination of thousands of these pests, say extension authorities at the college. The warfare against the jackrabbits was carried on by county agricultural agents in co-operation with the United States biological survey.

Strychnine poisoning was found to produce the best results in Morrow county, where 80,000 of the 125,000 hares killed were wiped out by this means. Hunts resulted in the death of 15,000 and organized drives in 30,000.

When the poisoning campaigns are carried on under county agents' directions the cost to the county is not more than \$300 or \$400. Harney county, where this system is not in effect, paid over \$4,000 in a campaign which had poorer results, it is said.

FUR PRICES HIGHER THROUGHOUT WORLD

**Raw Skin Dealers Attribute Rise in Values to Fashion--
Retailers Believe Lower Costs Will Stimulate
Consumption**

Fur department buyers in their efforts to discover the cause of present price levels seek to lay the solution entirely at the door of the raw fur merchant. They admit that a partial liquidation of prices has been in process, and this is attributed in large measure to the closer profit margins that fur merchants have been permitting themselves.

Yet the retailer feels that the charges leveled against him ought to be borne largely by the other end of the fur trade insofar as they refer to mark-ups. One important retailer asserts that the fur department often loses money for the store.

All the important members of the raw fur industry agree that they would like to see lower fur price levels prevailing.

But fur is an item into which the style element enters so largely, that like all such commodities, values are fluctuating. There can hardly be stability where popular demand plays the leading role in creating price levels.

Retailers often take pride in referring to their price levels as lower than that of competing stores. One buyer pointed out that the profits of his department are four to five per cent. lower than that of his neighbors. He was asked if such a percentage did not seem negligible when profits in excess of 100 per cent. are often added to costs. This buyer of an important department store said that a number of favorable comments were made concerning his prices.

The upward price movement in furs appears to be world-wide, it was said in the trade. At the recent Leipzig auction average prices were 15 per cent. above open market prices here. Europe, in spite of evident poverty, has much money to spend for luxuries. While the recent fur catches have been satisfactory in supplying trading needs, foreign markets have become more active competitors for supplies.

A buyer refers to an abuse in the fur trade as the habit of passing from one dealer's hands to another, each adding a profit of 10 per cent. and passing it on to the manufacturing furrier, who in turn passes on the unnecessarily higher cost. But dealers contend that this can only be done with furs when market prices are moving upward. It is just the same when one dealer alone takes all the increment of value. At the present time there is very little chance for such turnovers.

Buyers are now active in looking at salesmen's samples. They have already stocked their tables with seasonable fur pieces. The cheaper grades of chokers and neck pieces are in the open and expensive pieces behind glass. Salesmen's orders are small in size. Buyers say they intend buying carefully and any development in demand will not find them ordering beyond immediate needs even though prices should advance meanwhile.

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American Fox Breeders Association, Boston, Mass.

Resolutions Adopted at Recent Meeting of Association—Many Items of Interest

THE several new resolutions passed recently by the American Fox Breeders Association, are both wholesome and constructive and are another step upward in the advancement of the live fox industry and fur conservation. The advancement and stabilizing of the live fox industry is the sole aim of the present office holders of the American Fox Breeders Association, and, in no way, are any of said office holders, obliged to, or do, receive from the fox industry the larger part of their income nor indebted to any parties to whom the live fox business is their entire business. The fact remains, that a number of gentlemen in the year 1918, conceived the idea to Standardize the live Silver and Black Fox and did so at a cost to themselves of their time and an outlay of thousands of dollars, given to the cause with no thought of monetary gain. These men, practical business and scientific professional men, had the highest motives in associating themselves together, to form an association whereby the live Silver and Black Fox might by co-operative work and study, be brought to a higher point of perfection, and knowledge acquired, disseminated among the members of the association.

The Secretary is continually receiving letters from parties wishing to invest money in the Silver Fox business. A great many of the parties have read some advertisement or learned of some certain strain of foxes to be had. They write to the Secretary asking if Mr. So and So is reliable and if his foxes are good ones and if it would be a safe investment to take shares or buy foxes of Mr. So and So. As every present fox rancher knows, the A. F. B. Association was not organized to make money or to help sell foxes for its members, but, to the novice who thinks that is the aim of the A. F. B. Association, we have to reply that, being a member, Mr. So and So, is amenable to the Rules and Regulations of the A. F. B. Association and should he not act in conformance with the Rules and Regulations, he would be liable to suspension or disqualification. This is a safeguard for the buyer. As for the reliability of the member, the Secretary sends the name or names of the references given at the time of applying for membership in the A. F. B. Association. Should Mr. So and So not be a member, we merely state that fact saying that not being a member, he is not governed in any way or held responsible by the American Fox Breeders Association.

Not in the way of coercion but mainly as a deterrent and a help to the industry, did the A. F. B. Association adopt several Rules and Regulations as enforced by other live stock associations. Among these Rules is the Article Discipline, Section one, reads as follows: The association shall have power, by two-thirds vote of the members present at any regular or special meeting, to suspend any member or delegate or remit or continue the suspension imposed by the Board of Governors or the Trial Board, for conduct prejudicial to the best interests of the association or for violation of its constitution, by-laws or rules. The order of suspension must then be referred to the Executive Committee who shall investigate the charges and report on same at the next regular or special meeting of the Association, when the members shall act upon such report and by a majority vote of those present, reinstate, continue the suspension for a stated time or expel such member or delegate. The Executive Committee must send to each suspended member or delegate by registered mail, a copy of the charges and a notice of the meeting at which said charges are to be heard, at least thirty days prior thereto.

Section three—Any Association, Club, Licensed Show, Individual, Person or Persons, may prefer charges against another for alleged misconduct in connection with foxes, fox shows or registrations, except in cases of monetary transaction where fraud is not strongly evident. Charges with specifications must be preferred in duplicate and sworn to before some qualified person, and forwarded with a deposit of \$10, which shall be forfeited if said charges are not sustained, except when preferred by the Secretary at the request of the Association or Board of Governors.

Section Five—No Association, Club, Licensed Show, Individual, Person or persons shall be disqualified without due notice and a copy of the charges and specifications have been given with an opportunity to be heard in defense. Any person who may have been suspended or disqualified may appeal for reinstatement upon paying a fee of \$5, until said fee has been paid the appeal shall not be acted upon.

At a meeting of the Board of Governors, held in February, passed to be engrossed at the next meeting, the following rule governing the scoring of foxes at Shows. Rule Seven—When judging foxes at all shows held or sanctioned by the American Fox Breeders Association, all of the foxes in any one class, shall be brought before the Judges for inspection; the cages containing the foxes to be placed side by side; the Judges shall then decide (by inspection only) which foxes are to be selected to be scored for first, second, third and reserve places, and, should the Judges decide that all the foxes must be removed from their cages, the owner or his agent and helper must be present at the time of judging of said foxes and be prepared to remove the said foxes from their cages and to handle and place said foxes in such place or positions as the Judges may demand. The four foxes selected by the Judges shall then be scored for points, using the Universal Standard as adopted at Montreal September 12, 1921, with the American Fox Breeders interpretation of details.

Section two—In cases of a tie score, the foxes shall be awarded points on the total fur value and in case of again being tied in total fur value the first highest, numerical order, of the fur value as appearing on the score card, shall be declared the winner.

The matter of a duty to be or not to be placed on all foxes imported is yet in the hands of the Tariff Committee at Washington. The sentiment of the members of the A. F. B. Association is that a duty of somewhere around 35 per cent. should be levied on all foxes not securing eighty-five (85) points or more, using the Universal Standard as adopted by the delegates of both Associations from the United States and Canada at the conference held September 12, 1921, at Montreal. The members generally, feel that all of the cost and more, of examining the foxes by competent officials would be received from the duty of 35 per cent levied on the poorer grade of foxes and our industry, which has grown to such large proportions, would be protected to a greater extent. As the Silver Fox industry has not as yet, advanced to the point of raising Silver Black Foxes for their pelt alone (the call still being for breeding stock) a duty on the raw and dressed pelts is not all important at this time, unless however, every live fox is taxed on being imported or every fox allowed to enter duty free.

On the matter of Quarantine the Department U. S. Biological Survey, asked for an expression of the wishes of the American Fox Breeders Association at a regular meeting. This

reply was forwarded and was to the effect that the members most sincerely desired all foxes that were imported, to be subjected to a rigid quarantine examination by U. S. Government Officials as was printed in the first quarantine regulations as applying to foxes and not as by some reason or other made to read as it does now, foxes examined in country of origin. This quarantine as now in force does not protect the rancher in the United States from having hook worms and contagious diseases brought into their ranches. The writer knows of one case where foxes bearing the certificate of examination in Canada, were examined on arrival and samples of feces were taken by a United States Government B. A. I. Official, these sample were forwarded to the laboratories at Washington and they reported back "infested with hook-worms." We will quote right here from a sentence on page two "The Fur Trade and the Fur Supply." "It is interesting to note here that the revenue accruing to the Federal Government from articles made of fur during 1920, on which there is a ten per cent. revenue tax, amounted to \$15,311,214.24.

The first pups are beginning to arrive daily now and in one case where they were born on March first, they are peeking out of the chute.

Dr. S. F. Wadsworth reports having a fox sent to him for an autopsy which died in convulsions. On examining the stomach of the fox, it was found to contain a 38 calibre bullet, mushroomed. The fox had been fed meat taken from the neck of a horse. The horse had been shot and the bullet mushroomed down into the neck and apparently the fox had swallowed a piece of the meat containing the bullet which caused inflammation and clogged the outlet of the stomach. This was a very peculiar circumstance.

The cash purses offered by the A. F. B. Association to be awarded at some show held or sanctioned under the Standard Rules and Regulations of the A. F. B. Association are expected to create much interest among the breeders of foxes this year. Send in your name for information about the cash purses. Don't buy a fox until you have secured a copy of "Questions to Dealers" published by the American Fox Breeders Association. It is free.

In a recent letter received from the Forest Supervisor of the Tongass National Forest, Alaska, stating that there was a movement on foot in Alaska to form the Alaska Fur Farmers into an association for their mutual protection and benefit, and asking for information in reference to forming such an association, it was very interesting to read that at the present time there are on the Tongass National Forest, located in the southeastern part of Alaska, eighty fur farm permittees. The fur farmers of this section leasing from the Forest Service, small islands, 2,500 acres or less in extent for their business. They report that up to the present time we have had some wonderful success in the raising of especially blue foxes. The conditions here have proven to be most ideal, the expense of operating, being as low as any place in the world. The small islands surrounded by deep navigable water which obviates the necessity for fencing. Their food supply is largely fish.

This office has received several letters asking us to find

positions as ranch keepers and helpers on ranches, and stating that the inquirers are men of experience. One such inquirer has just written from Newfoundland. Any persons wishing the names of those parties will receive them if they will write to us.

NEW YORK CITY

The local auctions will open April 24, with goods ready for inspection about five days earlier. In view of the amount of tabulation work necessary, it is expected that details of the offering may not be available for several days.

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ONE OF SPOKANE'S BIG INDUSTRIES

Ranch of the United States Silver Fox Farms Corporation—
Description of What is Considered One of the Big Ranches
of the Country—Mr. Robinson Considered an Authority
on Silver Black Fox Farming

It was the writer's privilege some time ago to be offered an invitation by Mr. E. M. Robinson of Spokane, Washington, president of the United States Silver Fox Farms Corporation, to visit the Spokane farm that is situated on the famous Appleway six miles from the heart of the city. Mr. Robinson was formerly a well known Seattle resident. It can be truthfully said that Mr. Robinson is to be considered an acknowledged authority on silver black fox farming as he has made a constant study of the subject and has exhausted every possible means to obtain information pertaining to them and has visited every silver black fox ranch in North America of any note.

Before adopting plans for construction of the Spokane farm, Mr. Robinson submitted them to such men as Dr. Carl B. Hanson, who conducts the United States government experimental silver black fox farm at Keeseville, New York, Mr. Frank G. Ashbrook, of the Department of Agriculture, Bureau of Biological Survey, who is compiling statistics of all fox farms throughout the United States and Canada for the department, also Dr. Allen and Dr. Church, Canadian veterinaries conducting laboratories for the Canadian government at Charlottetown and Summerside, P. E. I.

Consultation of these able and efficient men have resulted in the construction of the most modern up-to-date sanitary fox ranch in the world to-day. The drive to the ranch of six miles from Spokane is soon covered in a car and there is plenty of scenery along the ride. The farm comprises an area of twenty acres and is situated so as to have for a windbreak a large hill to the rear, which tends to lend a beautiful aspect to the whole scene. A large, high board fence, which in due time will be painted black and white stripes, surrounds the ranch.

On entering the enclosure one doesn't reach the fence at once, but must first pass over what will be in due time a pleasure and show place and resort. There is a wire guard fence which completely encircles the pens. The wire is of a heavy texture and extends into the earth two feet and turns under two feet more, while at the top there is a hangover of two feet. It can be seen that should a fox escape from his pen it is practically impossible for him to get away. At night time there are two police dogs that circle the entire enclosure and act in the capacity of silent patrolmen. It might be well to say here that the silver black fox does not mind these dogs, but rather seem to regard them as their protectors.

The pens are built on a centrifugal plan with a watch tower in the center of the circle. Each pen is 60 feet by 20 feet, by 12 and are funnel shaped. The small end is nearest the tower. They are separated by a width of 8 ft. The Bureau of Biological Survey claims disease cannot travel over five feet. This ranch has taken an extraordinary precaution and have made their width eight feet. Each pen contains two foxes, a male and female. The feature of the pens sloping toward the tower has a very good advantage, especially during the mating season as the caretaker is able to watch the foxes at all times.

There is a searchlight in addition to be used during that time. The caretaker has before him at all times a chart showing pen numbers and name of the foxes. In the diagram is kept a detailed report of the actions of each fox. If a fox fails

to eat two meals in succession, it is immediately taken out and put in another pen and taken care of. Up to the present there has not been a sick fox on the Spokane ranch. In fact, foxes are more hardy than either dogs or cats. Foxes are fed twice a day, morning and evening and their food consists approximately 50 per cent. meat, 25 per cent. milk, 25 per cent. stale bread, vegetables, apples, ground bone, fish and fats. The cost of feeding is about one cent per day per fox. As a fox will eat less than one-half a pound of food daily the success of fox farming can be attributed to the extreme low cost of maintenance. Grass and other green foods are put in the pens at various intervals to keep them healthy.

The kennels are as clean as possible and are washed out once or twice a year with creoline. Many breeders dip young foxes after they are weaned in a weak solution of creoline to rid them of fleas and other vermin. On the Spokane farm every hygienic precaution is taken although there has never been in the history of the silver fox industry a case of a disease taking off any great number of foxes. In fact, the death rate of the silver black foxes at Prince Edward Island is given as a little less than one per cent.

The silver black fox is a very prolific animal and reproduces from the time they are a year old until they attain the age of twelve or thirteen. They breed once a year and raise two to ten pups to a litter. A successful silver black fox ranch in Canada has had an average of four and five-eighths pups to a litter for the last five years. Not only is the Spokane ranch of the United States Silver Fox Farms Corporation destined to become one of the leaders in this great and wonderful industry, but also a leader in the Inland Empire and their farm will add to the many attractions for which Spokane is noted.

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FIRST PRIZE for Best Dark Silver Adult Female.

SECOND PRIZE for Best Medium Silver Adult Female.

SECOND PRIZE for Best Medium Silver Female Pup.

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Tied for Third Prize for Best Adult Black Female, scoring 94½ points. We entered only 10 foxes. Several competitors entered two or three times as many. We won every cup we competed for except one, and lost that by only one-third of a point.

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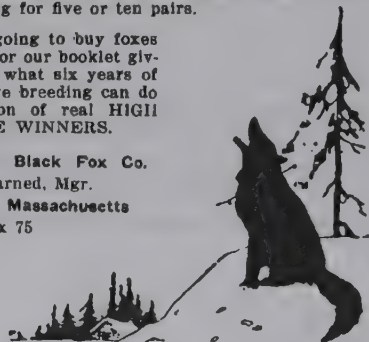
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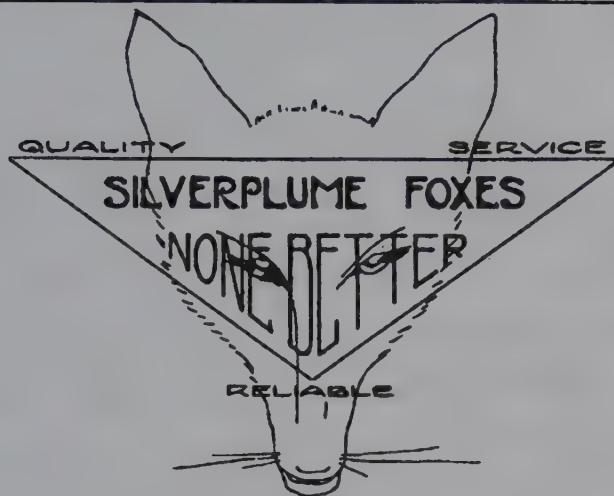
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THE Public Shooting Ground-Game Refuge Bill, the greatest measure ever introduced in the interests of the sportsmen, is still pending before Congress. Write your Senators at Washington to support S. 1452. Write your Congressmen and ask them to vote for H. R. 5823. If you have already done this, do it again. The future of the bill depends on the sportsmen of the country convincing Congress of the urgent necessity for its passage.

There is no question but that if marsh areas throughout this country are not preserved to act as breeding, feeding and resting grounds for migratory birds, the sport will be short-lived. Wild waterfowl cannot survive without such areas. You will have no place to hunt or no birds to shoot if this bill or a similar measure is not passed in the near future. Write your representatives at Washington at once to have this bill passed at this session of Congress.

Food Nutrition in Foxes

GREEN CUT BONE is the principal source of calcium and phosphorous. It is also rich in protein and fat.

Cutting up fresh bone with a machine makes the mineral and nutritive matter accessible to the fox, whereas much of it is lost when the bone is fed whole.

The Bone Cutter is a valuable machine for the **FOX RANCHER**.

MANN'S BONE CUTTER is guaranteed to cut any kind of bone. Operated either by hand or power. Send for catalogue.



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An American Publication Devoted Exclusively to the Silver Black Fox Industry and Fur Farming

C. L. ROBINS, *Manager*

PUBLISHED BY "AMERICAN FOX AND FUR FARMER"

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RELOCATING THE U. S. FUR FARM

Owing to isolation and difficulties of access to the Fur Farm at Keeseville, N. Y., the U. S. Bureau of Biological Survey is considering of relocating this experiment station to a place that can be conducted at a lower cost and greater convenience. Just where this station is to be relocated, is beginning to be questioned by the eastern fur farmers who desire to retain this fur farm in the eastern locality, and it can be said that they are justly entitled to it.

If it is definitely decided that there is to be only one experimental fur farm, which is to accommodate all persons and ranchers everywhere in the United States, then the Bureau of Biological Survey should be left unhindered to make its own decision where this new fur farm is to be.

There is an urgent need, however, of at least two if not three fur farming experiment stations to conveniently accommodate fur farmers in different localities. We have scores of Agriculture Stations in the various States and counties, each is for the immediate needs and specific problems of the farmers in the respective vicinity. For the same reason the fox and fur farmers should at least have two or more such stations. Just recently an eastern rancher sent one of his samson foxes to the U. S. Experimental Fur Farm for study and research. A western ranch probably would not have undertaken to send a fox on such a long journey. The western ranchers are as justly in need of an experimental fur farm as those in the east.

Also there are different problems to be solved in different localities. The problem of muskrat farming has hardly been touched. Since the rise in price of muskrat skins, together with their docility and extreme prolificness, many thousand acres of idle swamp land could be converted into productive fur farms. Such muskrat farms at the same time would furnish protection and refuge for our game and song birds.

UNITED ACTION

B. Graham Rogers, writing in the Fur Trade Review May 1922, ably points out the need of advertising Silver Fox Furs for the purpose of creating a popular demand. He then cites the existing condition:

"Remember that in the United States alone there are hundreds of cities with populations of 25,000 people and over. The cities reach from coast to coast. How many fur dealers are carrying silver fox samples in these towns? I venture to say there are practically none. In

this paragraph lies a suggestion which contains great possibilities for the development of this business."

Mr. Rogers' proposal, however, that the Fur Trade take it upon themselves to do this advertising, is not agreed with by the editor of the Fur Trade Review who wisely advises, that if any advertising is to be done for Silver Fox Furs, it must be made by the producers themselves and not left to outsiders. He also points out that before such a step is taken, the producers should unite into one association that will control the whole industry.

There is no question but that both Mr. Rogers and the editor of the Fur Trade Review have struck the successful keynote to the present situation. Silver Fox Furs must be advertised and popularized if a stable price is to be maintained, but that this achievement is contingent upon the union of all Fox Breeders Associations.

It is becoming very apparent that the majority of silver fox breeders are desirous of having a union of associations. It is the producer who has to pay the bill and who realizes that such an association will be his very life blood of existence. It will be these individuals who will bring pressure to bear upon their local associations to organize into one association, first national then international in scope.

Fortunately there are far-sighted men in both of the large associations who are preaching such a union. Those few who are opposing this movement will soon be overwhelmed by the voice of the majority, the producer who has all at stake.

After the present breeding season is over, it is sincerely hoped that resolutions be adopted and committees be appointed by all present Associations to hold a preliminary meeting for the purpose of organizing an executive body to deal with problems National and International in scope.

NOW IS THE TIME TO BE CAREFUL

Fox ranchers throughout the United States will agree that this is the time of the year when they must be careful, not only in the cleanliness of their pens, but also in the methods used in feeding. Healthy pups are the result of eternal vigilance, and the progressive fox rancher is the man who, during this season of the year, is watching to see that not only the pens are kept scrupulously clean, but also that the dishes in which the food and water is served are cleansed at least once daily, and also that the rations which are fed to the foxes are properly prepared.

BLUE FOX FARMING AND ITS FUTURE

By GEORGE A. JEFFREYS

(Copyrighted 1922, by G. A. Jeffreys)

PROVIDENT nature was surely in a charitable mood when she clothed the arctic fox, that dwells on the coast of Alaska and nearby islands, a fur coat of dusky blue. On the snow swept barrens and ice floes of the north, this same fox, in preference to blue, wears a coat of pure fluffy white, as blue against a white background would surely betray him to his enemy, the wolf. Since fashion has decreed that the darkest furs are the most fashionable, and since blue as a color for a garment is more desirable than white, the blue fox has become a valuable asset to the land of its habitat. When the United States Government purchased Alaska from Russia for thirty million dollars, it bought a hidden gold mine. From Pribilof Islands alone, 1,000 or more blue fox pelts are sent annually to the fur market by the Government, while on mainland several thousand more fall victim to the trappers art.

The blue fox is an unusually interesting animal. If domesticated, it indeed would be more useful than some of the ornamental lap dogs that society now tolerates. Coming from a remote uncharted region, it is perfectly fearless of man, probably assuming him to be some species of a quadruped belonging to the deer family. Whether on the plains of Alaska, or in the confines of four wired walls of a fox ranch it always inspects visitors and strangers with that quizzical and curious look in its eyes, as much as to say, "Who are you, and what do you want?" Dr. E. W. Nelson in his article on "Our Smaller North American Animals," in the National Geographic Magazine, narrates an interesting incident how a blue fox stole his note book. One day while doing research work on the plains of Alaska, he had seated himself on a stone to take down a few notes in his book. A blue fox appeared a short distance away and studied him curiously, and was curiously studied in return. The Doctor completed his note, rose and departed. But it appears the fox has mesmerized Dr. Nelson, and made him forget his notebook. The Doctor had only gone a short way when he realized his loss and returned to the spot to get it. But all he found was the blue fox eyeing him curiously, with an innocent look, and no notebook anywhere.

Prolificness of Blue Foxes a Promising Character

Blue foxes believe in having large families. It is quite common for litters to average over ten and a litter of fifteen is recorded, while fourteen has been reached quite often. Here is a valuable character that has only to be developed and fixed by some persevering rancher. Probably owing to the high mortality of blue foxes in their natural state thru disease and enemies, provident nature has created a means of preserving the species by developing large litters. Since the market price of blue fox skins averages around \$100 to \$150 a skin, a litter of ten would produce pelts to the value of \$1200.00, while if live animals sold at \$500 to \$1000 a pair, the profits would be considerable more.

Acclimitization and Parasites, the Secret of Raising Blue Foxes

The attempts to raise blue foxes in captivity in the United States and Canada has met with varied success, but no definite general success has yet been achieved. Success is being achieved in a few specific instances, but blue foxes can and should be successfully raised by all ranchers. The trouble lies in a lack of comprehensive insight into the factors that restrain blue foxes from breeding when brought to the United States. The U. S. Government thru the Bureau of Biological Survey has worked on this problem for several years and much has been learned thru its efforts.

Blue foxes are successfully raised in captivity in Alaska. Bringing them into the United States brings in several factors which changes the situation entirely. The first factor is acclimatization. Every breeder knows that in transporting a plant or animal from one environment to another, upsets the balance of nature between animal and the new environment, with a consequent lessened or cessation of its reproductive powers. E. Davenport in "Principle of Breeding," states that imported animals are seldom fertile until acclimated.* Every experienced rancher knows that transporting Silver Black Foxes a few hundred miles even affects the reproductive powers more or less for the first year. Now moving blue foxes from Alaska to the United States is a much larger step, and therefore the effects would be much greater.

It is characteristic of all plants and animals that of the many transported, a certain few will adapt themselves to



BLUE FOXES ON THE U. S. EXPERIMENTAL FUR FARM

*E. Davenport, "Principles of Breeding," page 376.

the new environment and reproduce. The progeny of these individuals form the foundation stock of the race in its new environment. From this principle we may infer that *the bigger the step, the more animals it will require to produce an acclimatized race.* Many of the parties who have tried raising blue foxes in the United States, usually purchased only one or two pairs of animals from Alaska. The quantity was never large enough for the rancher, to produce enough young, to enable him to practise selection and develop an acclimatized and prolific strain. The time is near at hand, however, when blue foxes will be raised as freely as Silver Blacks.

Parasites, is a second factor which prevents many imported blue foxes from breeding. In the many cases that have come under the writer's observation, imported blue foxes from Alaska were heavily infected with internal and external parasites. Hook and tape worms and blue sucking lice were the most numerous. Blue foxes handicapped in such manner, are lacking the vigor to become properly acclimatized to a normal reproductive point. An efficient remedy for the removal of hookworms was unknown a year ago, and the blue fox rancher was greatly handicapped. Now, thanks to Dr. M. C. Hall, we have an efficient remedy for these parasites in the form of Carbon Tetrachlorid. With this problem of parasites practically solved, the rancher will have greater success in developing the blue fox industry.

It may be assumed that most of the foxes coming from Alaska are infested with parasites. Some of the Alaskan ranches however are taking steps to eradicate all parasites from their ranch bred foxes. By doing this thoroughly, they will greatly increase their sale of live blue foxes to ranches in the States. Parties purchasing a large number of foxes from Alaska should make arrangements to see that every fox is free from parasites before it is shipped to the States. The animals upon arrival at the ranch should be placed in quarantine pens built for this purpose, where they may be thoroughly examined and treated for parasites if any are present.



YOUNG BLUE FOXES ON THE U. S. EXPERIMENTAL FUR FARM

Method of Raising Blue Foxes

The question of location appears to have an important bearing in raising blue foxes. Many persons hastily assume that blue foxes coming from Alaska, come from a cold climate, and therefore the climate of the United States is not cold enough. Such, however, is not the case. Some of the best blue fox pelts come from the Aleutian Islands off the coast of Alaska, whose climate is not unlike that of the States along the Great Lakes and Atlantic seaboard, humid and damp. It is in the extreme cold and dry climate in the interior that produces the white fox, which is an inferior animal compared with the blue. Blue foxes therefore, can be successfully raised thruout the Great Lake Region and in the northern States along both sea coasts.

The construction of ranch and pens and method of raising blue foxes is similar to that for silver black foxes. In selecting a site the following features should be carefully considered. Good drainage is absolutely essential, for by its means the reproduction of parasites is kept within bounds. The ova of hookworms and ascarids develop in moist damp soil, so if the site is well drained and every pen exposed to the sun some part of the day, the eradication of parasites becomes an easy matter. A soil containing these conditions is a firm sandy or gravel loam, slightly sloping if possible. The shade should be so arranged by means of deciduous trees placed between pens, so that the sun will reach every part of the pen some time thru the day.

The pens should at least be large enough to take one roll of wire around, as 55 by 20 feet or 45 by 30. As blue foxes are now in the process of being acclimatized, a larger pen is more desirable. A pen 60 by 25 would provide room for plenty of exercise. A smaller dog pen about half as large should adjoin the female pen in case of necessity.

Blue foxes do not dig as much as silvers. It is necessary, however, to have a secure foundation as with silvers. If the soil is light the floor of the pen should be entirely carpeted over several inches below the surface. In a firm soil the fence may be sunk to a depth of two or three feet and turned in two feet. The height of the fence should be at least nine feet with a two-foot overhang. In building the fence, nothing should be used in bracing that will allow the foxes to climb up, as poles in bracing posts. Foxes will climb such places to look for the keeper with the food, and jumping down from any great height may cause pregnant females to abort.

Blue foxes have a more polygamous tendency than the Silvers. In captivity however they are raised in pairs, but after a breeding strain is once established this polygamous tendency could be developed to a high extent. The females are not very vicious when penned together, the writer having kept several in this manner for nearly a year. At the approach of mating season each female should be given a separate pen. If one male is to be used on several females, he should be changed from one pen to another every day or two. A male was successfully used in this manner on the Government Fur Farm.

Blue Foxes usually mate sometime in April. The gestation period is from 55 to 56 days. Although blue foxes seem more friendly and fearless than silvers, precaution should be taken not to disturb the mother during gestation

period, whelping time, and while pups are still young. A blue fox will sometimes carry out her young from the den at the slightest disturbance.

The pups commence to come out when a month old. They can now be taken out of the den every afternoon and fed some whole fresh milk. If this is kept up, they will soon come to look forward for this dessert and will all eagerly watch and wait at the gate.

Food and Feeding

It is assumed by some ranchers, that since blue foxes in Alaska go a long time without food in winter and become half starved, they must carry out the same program of starving the foxes here in the States. Blue foxes have the faculty of getting extremely fat. In their natural habitat, this is probably one of the means they have of storing up heat and energy for the sparse and cold winter months. The theory of starving might be applicable to the animal in its own habitat, but here in the United States and in captivity conditions are different. Since the foxes are adjusting themselves to new conditions, they regularly require and in correct amounts, the best body building food obtainable.

The method of feeding and kind of food should be used as that described in a previous article in this Magazine on "Food Nutrition in Foxes." Briefly recapitulating the principle points are:

Feed twice a day, the following rations: a meal once every other day or every day of milk or eggs with a biscuit or well cooked mush composed of equal parts of whole

it uneaten, the ration should be cut down, or a meal missed. This last rule seems to be invariably hard to follow. We are so afraid of the animals not getting enough to eat, when in reality they are probably getting too much,—it is not the quantity but the quality of the food in correct proportions that counts the most and produces the most pups.

Parasites in Blue Foxes

Since the discovery of Carbon Tetrachlorid, hookworms and ascarids may now be entirely eradicated from a ranch. Treating foxes with medicine alone however is not sufficient but must be supplemented by several other factors. For eradication to be complete the following regime should be carefully carried out:

- 1) Treat young and old foxes regularly every two or three months.
- 2) Have perfect sanitation, keep all feces picked up in the pens, clean and disinfect all dens. This will help to keep animals from being reinfected.
- 3) Good drainage and plenty of sunlight to all parts of the pen thru some part of the day.
- 4) Let old pens lie fallow thru the summer or at least for two months thru the dry season. Treat all foxes before placing them into new pens.

Young foxes should be treated systematically when three to six weeks old. On another page of this magazine the method of treating fox pups is described in detail.

Foxes from Alaska are sometimes infected with tape worms. The following treatment is used by Dr. K. B. Hansom of the U. S. Experimental Fur Farm. Starve 24 hours then give one drachm of Kamala with castor oil. In fact any standard tapeworm remedy used on dogs would be equally effective on foxes.

External parasites are removed in the same manner as in Silver foxes. Blue sucking lice and mange are best treated by dipping in some standard solution. Fleas may be kept down with a reliable insect powder.

Conclusion

The raising of Blue Foxes in the United States is a coming industry and will bid fair to rival that of Silver Fox Farming. Blue foxes can and have been successfully raised in the United States. A lack of comprehensive knowledge of the factors which prevent blue foxes from breeding is the reason for the many failures in the raising of Blue Foxes. These factors are:

- 1) Acclimatization. In the majority of cases only a few pairs were imported from Alaska which did not furnish enough material to develop an acclimatized race of foxes.
- 2) Parasites. Hookworms in many cases furnished a barrier to successful breeding. With the discovery of Carbon Tetrachlorid, this barrier is now removed.
- 3) Food. Foxes imported into a new environment need to be well nourished and not starved as has been done in many cases.

Knowing the factors that prevent Blue Foxes from breeding in the United States, the time is soon at hand when a few patient men will develop a strain of blue foxes having the desired qualities, beauty of pelt, prolificness and vigor.



BLUE FOXES ARE FEARLESS OF MAN

wheat flour, cornmeal, bran and 10% green cut bone. A meat ration at other times at least once a day of one of the following: beef, horsemeat, mutton, tripe, liver, lights, poultry, rabbits, etc.

Blue foxes should be fed more carefully and more nourishing food than silvers to obtain equal success. Biscuit and milk should be fed once a day until a month before mating. Once every other day after that is sufficient, then once every day again after mating. The foxes should not be unhealthy fat, but in a vigorous and good condition. If there is any indication of a fox burying his food or leaving



A clever combination of Mole and Silver Fox pelts makes this coat unusual
and most attractive

Shown by Kaufman & Oberleder, Inc., New York, at the New York Fur Fashion Show
held on April 26th

Photograph by Tornello

(Courtesy of "Fur Trade Review")

A DENTIST'S HOBBY

From "The Dentist's Digest," March, 1922

Silver fox raising as a hobby was the subject of a very interesting article in a recent issue of The Digest entitled, "Nerves?—Go Back to Nature." The accompanying photograph shows the author of this article, Dr. E. A. Randall of Truro, Nova Scotia, with one of his little pets named Lady Mary Fitz-William 3rd.



FOXY GRANDPA

(Courtesy of "The Dental Digest"
New York City)

Little Lady Mary is six months old and, according to Dr. Randall, as tame as a kitten, standard bred and registered, and belongs to the medium silver class.

Dr. Randall says that he has received many letters, from Digest readers asking about his hobby, and we are publishing this photograph of Dr. Randall and Lady Mary, in the belief that it may interest other readers who are seeking a hobby in which they can forget the trials of practice. Dr. Randall's letter is as follows:

I wrote you an article "Nerves?—Go Back to Nature," which you published in the Dental Digest. Evidently it proved interesting to some of your readers for I received several letters of thanks from other dentists who are interested in my particular hobby, fox ranching (raising silver foxes in captivity).

I have raised some beautiful fox pups this season. Two litters of five each in which I took a special interest. I handled them daily from the time they were four weeks old. These pups became very tame and playful. When I enter the pen they roll at my feet, inviting me to have a romp with them. I take them up in my arms and handle them like house cats. I enclose a picture of Lady Mary Fitz-William 3rd, six months old. She is standard bred and registered. She belongs in the medium silver class. These foxes are divided into four classes and range in colors from jet black to sixty per cent silver.

THE FUR MARKET

American Fox and Fur Farmer

Utica, N. Y.

406 Arcade Building

Fredrick Huth and Company report sale opened with good attendance and keen competition. Silver Fox best quarter and half Silver and full pale Silver advanced ten per cent. All other grades unchanged. Cross Fox best unchanged. Medium and poor advanced twenty per cent. Red Fox declined twenty-five per cent.

W. H. BENNET.

May 4, 1922.

OFFICE OF W. H. BENNETT

1123 Broadway

New York, May 4, 1922.

Messrs. Fred'k Huth & Co. report by cable the following result of their spring sale as compared with winter, 1922:

Silver Fox, Best Quarter and Half Silver, advanced 10 per cent.

Silver Fox, Full Pale Silver, advanced 10 per cent.

All other grades, unchanged.

Cross Fox, Best, unchanged.

Cross Fox, Medium and Poor, advanced 20 per cent.

Red Fox, declined 25 per cent.

White Fox, declined 10 per cent.

Blue Fox, excellent demand.

OFFICE OF ALFRED FRASER

No. 212 Fifth Avenue

New York, May 5, 1922.

Messrs. C. M. Lampson & Co. report by cable the following:

Fox, Silver, Clear Silvery sorts, same as last winter.

Fox, Silver, Blacks and inferior sorts 20 per cent. lower than last winter.

Fox, Cross, 15 per cent. lower than last winter.

Fox, Red, 15 per cent. lower than last winter.

Fox, Blue, same as last winter.

Fox, White, same as last winter.

Beaver, same as last winter.

Sable, Russian, same as last winter.

Wolverine, same as last winter.

Marten, 25 per cent. lower than last winter.

Ermine, 30 per cent. lower than last winter.

Otter, 20 per cent. higher than last winter.

Lynx, 20 per cent. higher than last winter.

RAISING BEAVER

By ROBERT G. HODGSON

From HUNTER-TRADER-TRAPPER



New season Squirrel wrap, featuring Jenny sleeve and chin collar

Manufactured by Cohen, Weingold Co., New York
Photograph by Tornello

(Courtesy of "Fur Trade Review")

MUCH of what has been said in regard to the muskrat is equally applicable to beaver, for they are closely related and their habits are much alike; in fact, I have every reason to believe they could be raised together although I know of no such attempt ever having been made. In the wild state, these two animals live on the same streams and lakes and the houses are often in close proximity.

Thousands of miles of forest, marsh and stream, good for no other purpose, are now lying idle and could profitably be devoted to the raising of beaver and muskrats. If unmolested for a few years beaver lose their fear of man, become comparatively tame and work on their houses and dams during the daytime. The writer is provided with proof of this for a friend out in British Columbia had several he had taken young and domesticated: they would pose for their photo and follow him around like dogs.

With such an animal further domestication seems unnecessary. Given a suitable pond or stream they find abundance of food and are able to care for themselves in every way. They can be fenced in as easily as a flock of sheep and their natural enemies fenced out.

Habits—The beaver is an aquatic animal of the squirrel tribe and the symbolic animal of Canada. In former times, owing to their plentifulness they furnished the pioneer with food, clothing and money, for their pelts were equivalent to our money as we consider it today; the flesh was used as food, and the pelts, when not sold and realized on commercially, were used as clothing. Today the Indian is the only person using them as food and the part they prefer is the tail. The castors also were, and are today, quite valuable, as they are used in the making of perfumes. The beaver is our largest rodent or gnawing animal.

In form and color they resemble the muskrat greatly; in fact the beaver appears as a much larger type of muskrat. The body is thick, squat and heavy; about two and a half feet long; and weighing when full grown, from sixty to eighty pounds. The fore paws are small in proportion to the size of the animal and are not used when swimming but are folded under the body. The hind feet are fully webbed and very powerful.

The tail, measuring ten to twelve inches in length, is the most characteristic part of the animal. It is oval in shape, flattened on the upper and under sides and covered with a species of heavy scales, over a thick dusky skin. This tail serves both as a rudder and propeller in swimming but he does not use it as a trowel in house or dam building as has often been stated. In building a dam, mud is dug up with the front paws and held to the chest while swimming to the place of construction. It is then patted down with the front paws also. Stones and such material is also transported in the same way.

The color varies from a light to a dark brown, some specimens being almost black. The under fur is thick and soft of a dull brownish color, mixed with longer hairs of a chestnut brown color on the back. The ears are black; the feet, legs and under parts a dull brown.

The beaver is noted as a builder of dams and is the mammal's foremost and most industrious mechanical en-

gineer. They build large dams of sticks, grass and mud, to make ponds in which winter food in the shape of trees, etc., can be stored, so that it is easily obtainable when the ponds have frozen over. It also serves as their home and hiding place and a safe refuge near their store of food. Sticks four and five feet long, from which they have eaten all the bark, are brought and laid crosswise of the dam to strengthen it. Dams over fifty feet long are often built and such long ones are made to bow upstream to better withstand the pressure of water.

When the banks of the stream on which they live are too low for burrows, as is usually the case, they build houses of poles, and aquatic plants plastered with mud. These homes are proportioned in size and number of animals they are to house, the number seldom exceeding four old and six or eight young ones, although more have been found. The entrances are scarcely under water. They have at least two compartments, a bottom one serving as a platform when coming in from the stream, and a top one where they live. Houses have been found where there were many compartments, each one separate and probably housing different families.

They fell trees to get the food they prize, aspen, cottonwood, poplar, willow, elm, box alder and birch; but never oak, ash or hickory. To cut a tree they stand on their hind legs, supported in an upright position by their tail, and gnaw two rings around the trunk with their chisel-like teeth; then they take out the space between the rings and so continue until the tree falls.

When the beaver are two years old they mate for life, mating taking place in February or March. The period of gestation is about three months. The litter varies from two to four but may be larger. The young accompany the mother for two years; are weaned when about two months old and taught to eat tender aquatic plants. When the young are ready to start on their own account, the parents accompany them and help to select and build their home. The home is usually built on some stream, often many houses and dams will be found on the one stream; the dams usually back the water up from one house to another.

During the summer months they leave their homes and roam around the country. At the approach of fall, usually in September, they return and begin building new homes or repairing old ones. Though usually quite social, old beavers sometimes become hermits and live alone, in a burrow, on the bank of some stream.

Although of such a nature that they can readily be tamed, they will not propagate unless given the proper conditions; i. e., left practically to do as they please, as I have intimated.

In former times the fur of the beaver was used almost exclusively in the manufacture of hats and the population of beaver was rapidly on the road to extinction; but when, in 1825, silk was substituted for this fur in the manufacture of hats the animals had a chance, partly at least, to recover from the great strain made on their race. Their fur is one of the most beautiful of standard furs: that is, barring such expensive ones as black fox, sea-otter, seal, etc., and in point of durability is second among all—the otter coming first.

Location—That raising the beaver for commercial purposes, under proper conditions, is feasible, is proved by the success of the Algonquin Provincial National Park. Here there are ideal conditions: wood and water, quiet and protection. When this park was begun, very few beaver were found within the limits, but now they are so plentiful that considerable revenue is derived from the sale of their pelts.

The writer is acquainted with other similar attempts

and in every case where the animals were given a chance they have multiplied and eventually become money makers.

I should not care to specify any limit to the ranch or farm. The plan is much like that explained for muskrats and illustrated in the chart in last month's issue. A good location is a long, rather flat meadow through which a stream flows, or a stream with a pond. The surrounding ground should be wooded with young trees from five inches up in diameter; the ground on either side rises gradually to considerable height to allow the animals, if they desire, to build summer burrows in preference to living in their winter homes. If there is no pond they will soon build one and all the others they require so it is necessary that they have trees of a size not too large on which to work. These trees should be of a kind already mentioned, supplying them both with food and building material.

The preceding is drawn from observations of the beaver and their homes and habits as I have found them in Northern Canada; and from other farming experiments and recommendations. In the North, where I spent some time studying them, I saw hundreds of houses—proof that they will thrive when ideally situated. In my estimation, it will not be many years hence, when much of our Northern country will be converted into fur farms for such animals.

It is well for the location to be plentifully supplied with aquatic plants. During the summer months especially, in addition to the foods I have mentioned, beaver feed on the roots of certain plants growing in the water, and I found much evidence of this in the north. There is no reason whatever, why certain vegetables such as those recommended for muskrats, cannot be cultivated on the farm and fed the beaver if natural food shows signs of giving out.

Fencing—The farm would need to be fenced to keep beaver in and predatory animals out. This fence should be of woven wire, one and one-half or two-inch mesh, one foot under ground and four feet above. If an overhang is thought necessary to keep animals out, it can be made as illustrated on fox fencing. The fence should take in considerable land back from the stream. Wherever it crosses the stream it should be arranged with upright iron bars as explained elsewhere.

Breeding—As the animals would be practically in a wild state, they would look after all matters of breeding, feeding, etc. However, new stock should be added from time to time to freshen the old; this new stock should be selected for perfection in type and fur, and should be as dark in color as it is possible to get them.



(Courtesy of Nieman Bros., Hamburg, Wisconsin)



Coat-wrap of Squirrel, collar of Taupe Fox, Mandarin sleeve and Queen Anne collar

Shown by Julius Frank, New York, at the New York Fur Fashion Show on April 26th

Photograph by Tornello

(Courtesy of "Fur Trade Review")

A NOVEL PLAN

THE Oneonta Conservation Club of Oneonta, New York, is trying an experiment in conservation work that will surely meet with success and set a high example for other sportsmen's organizations over the country. This club has purchased an abandoned farm of about four hundred acres, situated seven miles from the

city of Oneonta and adjacent to the state road.

The object is to interest as many people as possible in conservation work and show what can be done. Only one share of stock can be held by one person, the price of which is \$12.50. Over three hundred and fifty members have been secured.

It is the aim of the club to plant as many trees as possible this year and add more from year to year, getting new members as the work progresses. The area will be continually stocked with game. At the present time there is a large territory adjacent to the farm purchased, most of which is barren and of no value. The club plans eventually to acquire much of this additional territory. When the public sees the advantage in reforesting the now barren hillsides, when they learn how quickly game will increase when given cover and protection, they cannot help but take an interest in such a movement.

People must have places to go for recreation—public playgrounds, public shooting grounds, streams where the public can fish. When such a plan is followed out, it cannot help but produce a better sentiment toward conservation work, as well as creating a better understanding among the people living in the cities as to the rights and feelings of the farmers living near congested districts.

The sooner all Americans learn that we cannot pay interest out of principal, that we cannot take from Nature without putting back, the sooner conservation will be placed on a sound basis.

FORM NEW FOX COMPANY

Local Business Men Organize with a \$30,000 Capital—Purchase Holdings of Hayes and Ramsey—Start With Ten Pairs

(From "Traverse City Record-Eagle")

Incorporated for \$30,000 under the name of the Traverse City Silver Black Fox Ranch, several local business men have formed a stock company and will engage in the extensive raising of silver black foxes.

The firm has purchased the ranch of Hayes & Ramsey at the junction of Munson avenue and Eighth street and will take possession September 1. Hayes and Ramsey are now engaged in fur farming and have several pairs of breeders and some puppies on hand. When the new firm takes over the property it will start with ten pairs.

The following officers were elected at the first annual meeting held recently: President, Fred H. Pratt; vice-president, Dr. E. B. Minor; secretary and general manager, Vern O. Hayes; assistant to the secretary, Signe Petersen; treasurer, George Gerst; directors, F. H. Pratt, Fred Dunn, H. Morrison, John Nickles, Vern O. Hayes, Dr. E. B. Minor, George F. Brown.

Mr. Hayes, who will be general manager, is an experienced fur farmer who has been engaged in this business for several years with success.

This will add another fox farm to Traverse City's growing colony of fur farmers. Climatic and soil conditions have made this section ideal for the rearing of silver black foxes and it is altogether likely that other ventures along this line will be made during the present season.



Stylish evening wrap of Russian Ermine with
White Fur collar

Shown by Vogel-White & Co., Inc., New York, at the
New York Fur Fashion Show held on April 26th

Photograph by Tornello

(Courtesy of "Fur Trade Review")



Exquisite cape-wrap of Chinchilla

Shown by A. Jaeckel & Co., New York, at the New York
Fur Fashion Show on April 26th

Photograph by Tornello

(Courtesy of "Fur Trade Review")

THE CARETAKERS DEPARTMENT

Conducted by George A. Jeffreys

Foreword

IT IS a singular fact that civilization should be a harmonious whole; that nations, societies, institutions, individuals are an integral part in this great scheme, and when each is working in harmony, there is an uplifting result, a greater happiness and comfort for humanity. When discord arises between any part, civilization takes a step backward, suffering, hardship and sorrow are the outcome.

No man is born into this world to live and to work for himself. The benefits to him are greater if the products of his labor are for the advancement of humanity at large. Many of us get a wrong view of life by trying to keep everything to ourselves for our own selfish ends. What would Edison be if he invented the electric light or phonograph for the special use of his own family. No one thinks now of making his own shoes or farming implements. It is the united labor of all individuals that make for civilization, comfort, happiness, and higher plane of life.

Over twenty years ago, the men who first began to raise silver black foxes successfully, afraid that the London market might be swamped with black fox skins, endeavored to keep the business from spreading by keeping their methods more or less of a secret. If they could have but known, that by showing the public how any one with patience and work could raise silver black foxes successfully, that they would have been able to realize \$20,000 to \$35,000 per pair for their live foxes instead of a few hundred dollars, no time would have been lost in broadcasting every iota of information in their possession.

Gradually, however, information as to methods leaked out and in 1910 the raising of silver black foxes became general, while a few years later the price of live pair of silvers advanced to \$35,000 per pair, which was all due to the spreading of information.

Although the silver black fox raising industry is firmly established, there are men today who still hoard their would be secrets of success in fox farming as a miser hoards gold. Little do they realize that the industry needs their information to bring it to its proper place; that by giving this information they would in the long run be the gainer.

It is a well known fact that silver black fox furs cannot be featured or made popular until there are more of them. What is needed now is more ranches, more information, better methods, and then united action to advertise and create a popular demand for this fur.

If you have a new or better idea of a style of pen or den, a new method of treating fractures or feeding, it's to your benefit to tell your fellow ranchers about it. Keeping it to yourself will mean no big development in the industry.

This department is organized for this special purpose of giving your idea to the public on any phase of fur farming. If you have a new method or invention, write it down and send it in even if it's only ten words and we will be glad to publish it.

Editor's Note

On the many ranches of United States and Canada, men and women who are actually doing the work of raising foxes, are in need of some information bureau, that will not only bring to their attention the latest methods of raising foxes and other fur-bearing animals, but will guide and advise them in their work from month to month. Mr. George A. Jeffreys will personally conduct this department with the assistance of a staff of advisors who are expert in their line, such as Dr. C. P. Fitch, of the University of Minnesota, Ned Dearborn, D. Sc. and Dr. Samuel Wadsworth, M. D. V. The Question Box will be incorporated into this department, and all questions will be gladly answered direct from this department either thru its columns or by personal letter if desired. Contributions of new ideas or methods will also be published.

Technic of Administering Carbon Tetrachlorid to Fox Pups

The Fox Ranchers of America are realizing the importance of Dr. M. C. Hall's discovery of carbon tetrachlorid in relation to the fox farming industry. This little piece of information is worth thousands of dollars to every fox rancher. It means that samson foxes caused from hookworms, can be converted into full furred foxes with valuable pelts. Growing pups can be given a new lease of life to develop unmolested into full furred foxes. The rancher has now the method and the means to exterminate this troublesome parasite.

Heretofore various remedies have been tried with no great material results. Thymol, used more or less in Canada, removed only 88% of the hookworms and gave a mortality of 17%. Chenopodium oil also used extensively on humans, is only 20% effective. Until recently, the fox men were almost helpless against this parasite.

The long series of experiments by Dr. Hall to find a 100% effective anthelmintic has resulted in a crowning success. Carbon Tetrachlorid has been found to be practically 100% effective not only against hookworms but against ascarids (ordinary round worms) as well. But this is not all, the writer in tests just completed has found that it is 100% effective against intestinal flukes in foxes. Armed with such a weapon as this, the rancher bids fair to make a new record of production in raising silver and blue foxes.

We know from experience that worming fox pups is a wise and precautionary measure. Most of the losses from worms in pups occur about the age of three weeks. It is for this reason that many ranches treat all their pups for worms at this age. The question has always been of getting a harmless effective vermifuge for a pup of that age.

In tests just completed, Carbon Tetrachlorid has been found to be a safe and harmless remedy to very young pups as young as 17 days old when administered in the right way. Every pup treated with Carbon Tetrachlorid in the manner described below showed no signs of poisoning or ill effects, while its efficiency was a 100% against ascarids and hookworms.

If a ranch is infected with hook and round worms, it is a safe precaution to treat every pup with carbon tetrachlorid. Pups can be treated as young as 18 days old but this should only be done with tame females. The best time to treat pups is between the age of three to four weeks. After pups are eight weeks old all foxes should be treated every three months. By this method, with good sanitation, the worms will be gradually eliminated from the ranch.

Technic for Young Pups

Owing to its suffocating nature, when inhaled into the lungs, carbon tetrachlorid should be given in gelatine capsules only. By means of a simple technic devised by the writer, carbon tetrachlorid can be more safely administered to pups as young as 18 days old, than to adult foxes. Once in the stomach of a pup, it will absolutely do the work of sweeping out the worms without harm to the fox.

The swallowing action of a young pup is rather weak and therefore placing the capsule at the base of the tongue should not be attempted. By so doing the capsule is likely to stick in the depression between the base of the tongue and the laryngeal opening. If the capsule dissolves in this position the pup will likely suffocate. To eliminate this danger it is an easy matter with a simple instrument, to place the capsule in the esophagus past the laryngeal opening, so that it is impossible for a pup to suffocate.

Diagram 1 shows the construction, relative size and position, of the several organs of the throat of a fox pup. The diameter of the opening to the windpipe is about one-eighth of an inch. A glance will show that a No. 3 capsule with a diameter of one-quarter of an inch would be rather difficult to push into the windpipe. The capsule can therefore be easily placed into the esophagus by means of a gun made of a soft rubber tube which has been fitted with a pliable plunger.

A common ordinary piece of syringe rubber tubing having a total diameter of eleven-thirty-seconds of an inch or less, with a bore one-quarter of an inch will be very satisfactory for pups from 18 to 60 days old. Such a tube will handle a No. 1, 2, 3 and 4 capsule. The total length of the tube should be five inches long. Notches



Fig. 1.—Diagram of fox pup's head, skinned, showing wrong method of leaving capsule in mouth. e, esophagus; t, tongue; l, larynx; c, capsule; o, opening to windpipe, open.

or stops should be made every quarter inch three inches from the tip. The tip should be made smooth and tapering by sandpapering. A button should fit one end of the plunger while the other end should be blunt enough to push out the capsule.

The mode of operation is shown in Fig. 2. Before pups reach the age of six weeks the jaws can be easily held open with the hand. The pup's head is held in the palm of the hand, while its jaws are held firmly open with the thumb and forefinger of the same hand. When

pups are from six to ten weeks old or more, the jaws may be held open by means of a small speculum, the assistant operating the speculum. The rubber tube with the capsule in place, is first dipped in castor oil to make easy slipping and swallowing. The tube is now firmly grasped with the thumb and middle finger of the right hand and gently inserted down the throat into the esophagus. In inserting the tube it should be pointed slightly toward the back of the neck. The operator will feel the tube slip over the larynx. The tube should be pushed in



Fig. 2.—Diagram of fox pup's head, skinned, showing correct method of administering capsule with rubber tube; r, rubber tube; p, plunger; e, esophagus; c, capsule; l, larynx; o, opening to windpipe closed.

until the required depth is reached, this point being at least a half inch below the larynx. The following table gives the required depths tube should be inserted in pups of different ages:

Age, Days	Depth in Inches
17 to 28	3¼—3¾
28 to 42	3¾—4¼
42 to 50	4¼—4½
50 to 60	4½—5
60 to 90	5—6½

The tube is pushed in until the required mark or stop reaches the tip of the jaws or lips. The plunger is now pushed down with the forefinger to release the capsule into the esophagus and the tube is slowly withdrawn. The pups will suffer no discomfort either from treatment or its effects. No cathartic is necessary as all the worms are absolutely killed and will pass out in the normal feces. All pups should be fasted before treatment from two to twelve hours according to their age.

Of 69 fox pups treated to date by the above method, from the ages of seventeen days to five weeks, not one pup showed any signs of discomfort or ill effects. Nineteen of these pups were treated at the age of seventeen days, eight pups at eighteen days old and the remainder from the ages of three to five weeks.

The required dose for an adult fox is about 1.5 cc. of carbon tetrachlorid. The weight of a seventeen day old fox pup is about a pound. The most effective dose for a pup three weeks old is .2 cc. A No. 3 capsule just about holds this amount. The following table shows the required doses of carbon tetrachlorid for different aged pups together with the size gelatine capsule and bore of rubber tubing:

Age of Fox	Amount of C Cl	Size Capsule	Bore Rubber Gun in mm.
Days	in cc.	Required	
17 to 28	.2	No. 3	6
28 to 42	.3	No. 2	6
42 to 50	.4	No. 1	7
50 to 60	.5	No. 1	7
60 to 90	.6	No. 0	8

If your ranch is troubled with hookworms or in fact any round worms, then the writer strongly recommends that the above method be adopted. In order to obtain the full benefits from these treatments, the strongest sanitary

measures should be adopted. All droppings should be picked up every day, the dens should be cleaned often and the dishes washed and kept up from the ground.

Note—The June number will contain a short article on the technic of treating adult foxes with a carbon tetrachlorid.

Care of Fox Pups

Your pups now will be nearly two months old. Remember the vigor and quality of your breeding stock next winter, will depend largely on how well you will feed and take care of your pups now. Having got rid of all worms, they very quickly respond to good food and care. They should get plenty of bone forming material every day in the form of milk, eggs, cereals and green cut bone. There should be a dish for each pup and these with the dishes for the parents should be set on the same level in dish holders, or attached to the fence to keep them from upsetting. A noonday feed of milk when pups reach the age of six weeks will be a great benefit.

Do not feed heavily on meat but more cereals and milk. See to it that your meat is fresh and wholesome and not tainted if you don't want poisoned pups, or distemper. Try to see that each pup only gets his piece or share of meat. Clean the pens and dens every day in hot weather. Wash and scald all dirty dishes. If you have not time to do all this then quit the fox business.

Skunks

Young skunks are troubled more perhaps than foxes with round worms of the ascaris family. Many young die from this cause. All skunks should be treated for worms when four weeks old. Any standard vermifuge used on fox pups is equally good for skunks. The skunks should be first taken from their mother and fasted several hours before treatment.

Looking In Dens at Whelping

American Fox and Fur Farmer
Utica, N. Y.

Dear Editor:—In your April issue I liked the article "Items of Interest" by Dr. Samuel Wadsworth. I believe the Dr. is right when he cautions the rancher not to butt in on the mother with her young pups when they are but a few days old. I heard one caretaker say once, that he looked in the den right after the female had whelped to see how things were. This might be allright in case of a tame female, but I cannot see the advantage of doing this as a regular thing. The mother fox is more able to take care of her own young than any human hand. If one of the pups is still born the mother either takes it out or eats it without harming the living ones. If the mother does not give milk, which is very rare, it is almost impossible to save the young when they are only a few hours or a day or two old. At any rate is the advantage any greater by looking in and scaring the mother to see if everything is allright, than the advantage of leaving them entirely alone for at least a week or ten days? I think not. I should be glad to hear what my brother caretakers have to say about this subject.

CHARLES W. JONES,
Detroit, Michigan.

The Question Box

T. H.—Can you tell me whether it is better to locate your ranch out in the open where there is no shade, or is it better to put the pens among the trees? I have a few acres of land some of which is heavily wooded and some of it nice cleared sandy loam.

Ans.—Too much sunlight or too much shade is going to extremes and is undesirable. Sunlight, however, helps to keep the pens in a sanitary condition. The sun's rays by drying up the ground kill the worm eggs and germs. Some shade is necessary for the animals but it may be so placed that the sun will have access to every part of the pen some time of the day. I would build the yards out in the open and plant artificial shade between each pen.

H. W.—What is the gestation period of a marten and can they be raised successfully?

Ans.—This is still undetermined. The accepted theory has been that they mated sometime around February and had young in March or April. Recent observations on the Government Fur Farm however have shown that they mate in fall and have young the following Spring. The raising of marten is still in the experimental stage. Some success has been achieved on the Islands off the coast of Alaska by giving them the run of the island.

Would you please tell me if it would be profitable to raise rabbits and could I get a good market for them, and what would be the average price?

Ans.—Raising rabbits at a profit, like poultry and other farm stock, depends mainly upon the caretaker, and his success in finding a good market. If you are well adapted to this kind of work, and are located near a fair sized town, where there is a good class of hotels, club houses and private families to whom you can sell dressed rabbits, your chances are good for making it profitable. But if you are not conveniently located, so as to handle a retail trade you will have to ship alive to the produce dealers in the large cities, and take a lower price. The market prices of both live and dressed rabbits vary so much in all parts of the country that it is quite difficult to give an average price. In the eastern markets the price for dressed rabbits has probably averaged thirty-five cents per pound during the past year, and for live rabbits about twenty-four cents per pound. The present N. Y. City market quotation is thirty cents per pound live.

Pendleton, Oregon, April 30, 1922.

American Fox and Fur Farmer,
Utica, New York.

Gentlemen:—

The first three litters we had here were 17 pups. I surely think your magazine is fine and getting better each issue. Good wishes to you.

DR. D. C. McNABB.

Brothers Island, Alaska, March 29, 1922.

American Fox and Fur Farmer
Utica, New York.

Gentlemen:—

I received the sample copy of "The American Fox and Fur Farmer" you sent me and I thank you for the same, as it is a nice work.

Very truly yours,
C. E. ZIMMERMAN.



Dainty coat of Hudson Seal trimmed with Kolinsky and featuring the Jenny sleeve. Belt of silk cord with silk tassels

Shown by S. J. Manne & Bro., Inc., New York, at the New York Fur Fashion Show on April 26th

Photograph by Tornello

(Courtesy of "Fur Trade Review")

CONSERVE THE GRAIN, PROTECT THE GAME, REMOVE THE CAWS

(From "The Bull Moose," official organ of the Minnesota Game Protective League)

BY MAY 1st a million or more crows' nests in Minnesota will be crowded to overflowing with scrawny, ugly looking crow babes vieing with each other to get at the choice tid-bits brought them by two million or more wily black parents. Our chief concern is the nature of the tid-bits unceasingly brought to fill the gaping, red-lined mouths.

Take a trip afield, watch closely. You will see the bobolink volplane hurriedly down from his skyward flight, his wonderful song of ecstasy subdued to a gurgle in his miraculous throat. The meadow-lark hops off yonder stray boulder and squats, cleverly camouflaged in last year's dead grass. Bob White's clear whistle ends with unusual abruptness. At the edge of the marsh a redwinged blackbird, valiantly see-sawing on a pliant reed, slips unassumingly off into the thick rushes. A brown flash in the nearby thicket and Robin Redbreast disappears.

You wonder. A dark shadow flits over the ground and you glance upward to see old Jim Crow flapping by on lumberous wings eyeing you with askeance to see whether you are carrying one of those noisome fire sticks. Satisfied that you are harmless yet cautiously keeping out of gun range he suddenly drops and settles on a fence post near the marsh border.

The blackbird takes to the air, loudly calling for help. On they come, blackbirds from everywhere. A pair of kingbirds hurriedly leave their willows and join in. The entire flock assembles above the crow and perform a series of darting and diving maneuvers that would prove most disconcerting to any bird but old Jim. With utter disdain his sharp eyes rove here and there until he spies the little tuft of dead and green grasses with the unmistakable shadow of a cavity beneath. Dropping easily to the ground he stalks with almost ludicrous dignity over to the spot, pushes the overhanging grasses aside and reaching in impales a pearl, gray meadow-lark egg on his sharp bill. Fresh or nearing the end of the incubation period, it makes no difference to him, he devours them all with relish. Once more he reaches in, dragging forth this time a newly hatched young meadow-lark. Getting a firmer grip on the squirming, helpless bit of bird-life he flaps away towards his own nest, there to drop the still live fledgling down one of the red-lined maws stretching voraciously towards him. And then, back he goes, possibly to the same field to repeat the performance. Dozens of similar foraging trips are made during each day throughout the months of May, June and July.

Where crows are unduly numerous, and you can rest assured they are in Minnesota, it can readily be seen that they are a distinct menace to song and game birds. Rapacious hawks and owls formerly held the black rascal in

check. Unfortunately these checks to increase do not now exist in numbers sufficient to hold him within proper bounds. The crow is rapidly increasing, the only regulation being the scarcity or plentifulness of food.

Besides the destruction of millions of song and game birds, crows damage Minnesota field crops to the tune of millions of dollars annually. They delight in picking carrion to pieces and their subsequent visits to farm yards are viewed with dismay by the farmer who has gradually been educated to the fact that the crow is a purveyor of disease.

Many skeptical hunters have discovered that crow hunting furnishes an abundance of thrills. The nesting period is the best time to wage the campaign. The crow often begins nesting operations in March and the four to seven eggs are usually in the process of incubation by the middle of April. The first brood of young occupy the nest in May and the second brood in June or early July. The use of a crow call in the close vicinity of the nest never fails to bring the old birds within range. Stuffed or live owls staked out in the open will call crows by the score. A few dead crows impaled on pliable, sharp iron bars and set up around the owl will add to the excitement.

It is the duty of every sportsman's club in the State to devote part of their activities to crow eradication work during the coming two months. Certain days can be set aside for club shoots or a campaign can be inaugurated lasting throughout the entire period. Some clubs divide their membership into two teams, the winning team to be the guests at a banquet or barbecue prepared by the losers. Other clubs give substantial prizes to the individuals bringing the most crows and eggs. Bounties have also been paid on birds and eggs in some localities by County Commissioners and sportsmen's organizations. Any method will suffice so long as we

Conserve the Grain,
Protect the Game,
Remove the Caws.

Grand Marais, Minn., April 5, 1922.

American Fox and Fur Farmer
Utica, New York.

Gentlemen:-

I like your magazine and am willing to do what I can to help it to be a success.

Yours respectfully,

ROBERTSON SILVER FOX COMPANY,
By J. B. Robertson, President.

When writing the advertisers, please mention that you saw their advertisement in the AMERICAN FOX AND FUR FARMER.



Mole cape worked in panels. Collar and trimming
of black Monkey fur

Shown by A. Jaekel & Co., New York, at the New York
Fur Fashion Show on April 26th

Photograph by Tornello

(Courtesy of "Fur Trade Review")

BRINGING THE MARKET TO AMERICA

By F. E. BRIMMER, M. A.

Contributing Editor

There is one day toward which every silver fox man looks with great anticipation, that is the day when our own market shall be as good as that of Paris or London.

We Americans are too ready to take up with imitation and something that looks like the real thing. The art of the fur dresser has gone so far, with all furs except silvers, that you can't tell a house cat from some of the most expensive pelts when it is made up and sold over the counter to m'lady.

But with the silver fox fur we have something that never can be duplicated. It grows naturally so that the best art of the furrier will likely never be able to successfully imitate it. Even the casual observer may recognize the true silver, for the whole hair is not white, as one might suppose, but there are bands of white with a black bank between. A hard proposition to imitate.

Still the silver fur market is abroad today and has been since the beginning. What are the ways that will put New York, St. Louis, Chicago, and the other American fur centers in the same buying position, for home consumption say, as London and Paris?

One of the best ways to bring our silver fur market to America is to make the women of this country eager to wear silver furs of one kind or another. This means a great deal of advertising. The average ranch manager is too busy raising breeders to adequately advertise as he should. Americans do not appreciate silver pelts. Why should they? In this country you have to make a noise if anybody hears you!

I know farms where hundreds of pairs of silvers are being raised and those ranches have never spent a penny on advertising. You must tell the world about what you have to offer. Compare the hen and the duck, one believes in advertising when she lays an egg, and the other doesn't, which may have something to do with the popularity of one egg and the slight popularity of the other, still both are equally nutritious.

Some ranch managers do know the value of advertising and the photos of their animals show it. They connect with a good magazine, such as this one, and they stay by it. That is the kind of effort that will eventually bring the market to America, or at least put it above foreign markets.

Recently a fur buyer told me that he could take me to hundreds of fur headquarters in New York and show me that these houses had on hand but a single pair of silver pelts, many none at all. Why? Because they ship them all across the water to the big foreign markets.

The thing that every ranch manager must do is to cultivate a big home market for silver pelts. The way to do this is to educate the taste of the public, to make silvers fashionable. It takes something besides sitting quiet to let the world know you are alive and want to do business. Advertising of the right kind is what will bring your market to this country.

May Bulletin of American Fox Breeders Association

By GEORGE BRACKETT

THE working of the present law as pertaining to the Quarantine of Foxes, is at a decided variance to the best interests of the live fox industry as established in the United States by citizens who have no Canadian connections; but the law does work decidedly well for the financial side of the foreign interests who import foxes in such large numbers and also for foreign interests with business connections here and for the Brokers.

Prince Edward Island boasts of its large number of ranches and the number of people that are identified with the live fox industry on the Island together with their enormous yearly sales.

Where are these sales made if not to the people of the United States, and why can the Canadians afford to keep a man at Washington, D. C., and throughout the sections where the fox industry is booming?

Yes, we know the answer is because it pays and pays big.

Now why don't you ranchers and breeders in the United States co-operate and work for the protection of your own interests? You can accomplish anything you start out to do if you will only pull together; don't procrastinate and leave it to the other fellow to act, for the other fellow is apt to be misled.

It costs approximately fifteen dollars to have a fox put in Quarantine and have it passed upon by the U. S. Government of Quarantine.

This cost covers all expense of care, clearing the fox from Customs, and forwarding the fox to destination and such detail as are entailed in shipping foxes anywhere and up to the time the fox is passed upon by the Government officials; and if it is not cleared you surely do not want the fox at any price except for its pelt.

Our advice is that every buyer of foxes insist that the U. S. Government pass on every fox that HAS BEEN imported. The government charges nothing for this work.

You are hurting yourself in the long run if you do not insist on this ruling and also if you pay for a fox before it is cleared by the U. S. Quarantine Department.

We say this as a straightforward statement and are backed up in the statement by every person fully desirous of protecting our industry and who would prevent our ranches from becoming infected with contagious diseases and parasites which may not show themselves for two or three years after being planted in the soil by imported foxes which may carry these diseases or parasites.

"Question No. 25" on the list of "Questions to Dealers" which is sent free to all who write for it and which was framed to protect the purchaser when buying foxes, reads as follows: "If after purchasing any foxes from you and a sample of the feces is sent to the U. S. Government laboratories at Washington, D. C., within three days of receiving the fox and it is found that the fox carries hookworm or any contagious disease, will you take the fox back at once and refund me the full purchase price of the fox?"

If your ranch is free from disease and parasites now, you should insist on having "Question No. 25" read as a

part of your agreement of purchases.

Last season a sample of feces taken from foxes immediately on their arrival from Canada, were sent by an official of the B. A. I., to the laboratories at Washington, who reported back, "infested with hookworms."

"The Secretary has nearly completed what is probably the most exhaustive and comprehensive report on Silver and Black fox pelts, ever compiled if not the only one, embracing as it does the actual prices realized at Public Fur Auction Sales held in London, New York and St. Louis.

These statistics take in the years 1900, 1905 and other years to date and show the percentage of offerings of the different grades, also the high, low and average prices received for the different grades."

These figures are taken from original catalogues as received at the time of issue.

The writer did not go back of the year 1900 as that was about the time that the ranch fox pelt began to exert its influence on the market; catalogues in the year 1893 showed this fact.

Note—These statistics, embracing as they do the prices of several thousands of Silver and Black fox pelts sold at Public Auction during a period extending back and including the year 1900, is the most important list of facts and figures relating to the pelts of the Silver and Black fox, ever printed.

Being authentic, it should be read and studied by every person now interested or contemplating entering the live fox industry.

A limited number of these copyrighted statistics compiled for the members of the American Fox Breeders Association, will be mailed free to you who are wide awake to your own interests.

It will probably be of interest to fox men to know that the membership in the A. F. B. Association extends into the States of New York, Maine, Massachusetts, New Hampshire, Wisconsin, Vermont, Illinois, Michigan, California, Pennsylvania, Oregon, Minnesota, New Jersey, Missouri and Alaska, and also that we are sending this week into ten different states, letters in answer to inquiries as to where foxes may be purchased; these letters which we send out give the names of members having foxes for sale and endorsed by the American Fox Breeders Association.

Most every rancher to-day realizes that the pelt end of the industry must be systematized and developed and to this end the Board of Governors of the American Fox Breeders Association at a meeting in April, appointed a committee to investigate plans along the lines of Co-operative marketing such as is used by the Fruit Growers Association and like industries.

It will mean a matter of all ranchers pulling together or your industry remains in the hands of the unscrupulous.

Write this Association for advice and information at any time.

Better still, join the association and help promote the industry along the lines of benefit to all and partiality to none.

REMEMBER, the MOST VITAL questions confronting the Silver Fox industry at present is the Quarantine and Co-operative marketing of pelts.

The American Fox Breeders Association is trying hard to be of benefit to the industry, are you doing your part? Yes, we think so too, better send it along to-day.

The values of pelts as follows are estimated for strictly number one Grade A pelts of highest quality (there are five different grades to each class, second, third, fourth, and culls.)

April 1922
(Brackett, estimated values)
FULL FUR — PRIME PELTS
FINE TEXTURE — GOOD SIZE
Eastern or Alaskan

		Clear	Dull	Tinged	Heavy Tinge
BLACK FOXES					
Black	100% B	\$450	\$200	\$100	\$50
Silver Black	75% B	450	250	100	50
SILVER FOXES					
Black Silver	50% S	\$700	\$300	\$150	\$75
Silver	75% S	600	300	125	75
Pale Silver	100% S	500	200	100	50

Raising Meat and Fur Rabbits

By A. PHILBRICK

From Rabbitcraft and American Breeders Review

MANY beginners make a big mistake in buying young stock to develop when only three or four months old. The time lost, feeding and taking care of the animals, until they arrive at maturity ready to breed is a big item in favor of selecting mature animals, at the reasonable prices that are offered for good breeders to-day. Among the best breeders of any variety, very choice specimens standing out above others in the exhibition class are usually priced much higher than others of the same fine blood-lines. Some breeders prefer Flemish, some Belgians, some New Zealands, and some American Blues, according to their fancy and popularity, just as in the poultry breeds, some prefer Leghorns, others Rhode Island Reds, or Plymouth Rocks.

The big Flemish require a year to mature to breeding age. It is wrong practice to breed Flemish younger. They eat more, and cost more money than others. They also dress more pounds of meat, and their pelts are worth more than other breeds, excepting American Blues.

For a beginner who wishes a breed to produce pounds of meat quickly regardless of the fur value of the pelts there is little choice between heavyweight Belgians and standard New Zealands.

The beginner who wants a rabbit for both meat and high grade fur, one that will develop meat quickly, and whose coat is a valuable by product, the best known, there is no other breed that can equal an American Blue anywhere in the world. Every square inch of fur is a solid soft, silky dense slate blue color. There is no waste fur because their belly is as blue as their back. Remember one point about the quality of fur produced by Ameri-

can Blue rabbits. The skins make up into beautiful garments in their natural color without any dyeing or clipping. This point alone is a saving in cost of about a dollar per skin, or from \$40.00 to \$60.00 alone on the cost of a woman's coat, according to the length and number of skins used in its makeup.

These rabbits mature at eight months of age. They are a very gentle dispositioned rabbit, and the does are fine mothers, and very prolific, often kindling litters of nine, and seldom less than six young, to the litter. Standard weight, ten pounds.

One of the most valuable points to consider in any breed of rabbits is strong, hardy constitutions, free from diseases. I have bred them for six years of various strains and breeds—Belgians, New Zealands, Flemish, Himalayans and American Blues. During all this time I can frankly say, without fear of contradiction, that American Blues will stand off common ailments like ear canker, sore hocks, colds, etc., better than any others, and keep well. The success or failure of a commercial rabbit business depends upon several important items. The production cost per pound must be less than the selling price about one-half to show any profit from a strictly meat viewpoint.

Say ten does produce four litters a year, with an average of four raised, to each litter. This is an increase of 160 rabbits from the ten does. 160 rabbits dressing three pounds each, on an average at five or six months old, would give us 480 pounds of meat. If sold at 30c per pound would bring \$144.00, or \$12.00 per month, from which must be deducted the cost of hay, grain, etc.

Out of these 160 rabbits, I believe it is possible to save at least 100 first class prime pelts worth from \$1.00 to \$3.00 each when tanned, and made up into wraps, robes, etc., according to the fur value of the breed handled.

There is just as much money to be made from good fur rabbits as there is from the meat, especially when one learns how to tan the skins properly at home, and then have an expert furrier make them up for sale.

The wraps and robes displayed in shop windows sell themselves at top-notch prices that will never be cut lower than prices are now on account of wild animal furs growing scarcer every year, and our population increasing. The marketing of rabbit meat is a matter which is not hard to do, provided one can raise a steady supply, to guarantee so many pounds each week. There are numerous restaurants which can use from 30 to 60 pounds each week.

It will require 32 does producing four litters a year, four to the litters, to produce 30 pounds of meat a week, if all sexes went to the meat block—barely enough to supply one restaurant regularly.

To supply 30 pounds of meat each week, means butchering ten six-pound rabbits to dress three pounds each every week.

In order to produce a large meat supply one can readily see that it requires a large number of breeding does working continually.

One hundred breeding does running loose in pastures will require about fifty hutches to handle them at breeding time and a number of weaning pens for two to four months old stock. It is best not to turn youngsters

loose in pastures until three and one-half or four months old. They do better penned up and fed in roomy pens—about a dozen in a pen is plenty. These pens may be 3 x 8 feet with open bottoms and a shelter in one end, rain proof and wind proof. They are easily moved onto fresh grass every day or two. Young and old rabbits need grain once a day, when pasturing, fed in long troughs. They soon get used to each other and very little fighting is done.

The too common practice in America of killing young rabbits at three months old for fryers or broilers to satisfy the dainty taste of epicures should be discouraged by every rabbit breeder. First of all the pelt is forever wasted in any rabbit killed under five months old.

The flavor of a mature animal is much better than the baby. Only a very old rabbit is tough. The time required to cook a six-months old rabbit is longer, but you get twice as much good meat in pounds of a far better flavor, and save a valuable pelt in the older rabbit, which pelt represents your profit that is entirely lost in killing the baby as many now do.

Again, the fine points of many an extra good breeder or exhibition animal do not begin to develop or stand out until the animal is over five months old. Therefore, it is a safe bet that a large number of prize winning, exhibition specimens are annually fried at ninety days old that otherwise would have sold for a good price as registered breeders in Class A.

Rabbit clubs should work in harmony to cooperate and correct this wrong practice of destroying young stock with good fur. In case all breeders would agree to hold their meat stock till five months old the industry would grow much faster than at present. The great drawback to the trade for meat rabbits as conditions now exist all over the country, is a scarcity of meat stock to keep up a regular supply when it is needed by the restaurant or hotel manager. Unless he can be assured of a sufficient quantity of this meat each week he does not care to advertise it to his customers. I have had several retail meat market men tell me they would be very glad to handle several dozen dressed rabbits each week, but before working up a trade on them to their customers (who, many of them, buy chicken for Sunday dinners regularly) they want to know definitely and positively that they can depend upon a certain number of pounds to be delivered on Friday night or early on Saturday morning. A careful canvas of the restaurant and hotel trade for a meat rabbit market will result in finding the same condition existing. Some of them of course are very glad to get them any time, but most people want them supplied at regular intervals. To be able to furnish this regular supply means raising more of them for meat and then the market will grow, even as the market for dressed poultry has grown.



A striking example of the famous "Stylish Stouts carried out in Hudson Seal by P. Schulang Sons, New York

Shown at the New York Fur Fashion Show on April 26th
Photograph by Tornello

(Courtesy of "Fur Trade Review")

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American Fox and Fur Farmer**

Notes of the National Silver Fox Breeders Association of America

By J. E. SMITH, Secretary

AS THESE notes go to the Magazine the smoke has barely had time to clear away from the last regular meeting of the Association, which was held in connection with a "Feed" at the Hotel Muskegon. As each banquet held has been more successful than the one previous it is needless to say that the last one was the best yet. At this meeting we devoted less time to the formalities that usually are considered a part of the meeting, and most of the evening was spent in listening to remarks from our members and guests.

We were especially pleased to have with us one of our lady members, Mrs. Kate Milligan Church, who with Mr. Church is located at Hart, Mich. Mrs. Church, as most of you know, hails from P. E. I. and is one of the pioneers in the fox business and considered an authority on all matters pertaining to the Silver Beauties. The members, especially the newer ones, were more than interested to hear Mrs. Church tell of the early days of the industry and express her confidence and faith in the future of the business. Mr. and Mrs. Church are connected with the Corwin Trust Estate, which is going into the raising of Silver Foxes and other high grade live stock at Hart.

Mr. Perry Cole, manager of the Adirondack Mountain Silver Black Fox Company, Remsen, N.Y., attended this meeting also and gave his brother members some secrets that will be invaluable to them when various problems regarding the breeding of foxes are met. Mr. Cole has mated most of the females of his ranch with a few high scoring polygamous males and has met with wonderful results. He predicts that in the near future this system will be practised to a very large extent by all progressive breeders. Mr. Cole spoke very highly of the National Association and is doing all he can to boost it. His company has sold over \$30,000 worth of foxes as a direct result of the 1921 Live Silver Fox Show held at Muskegon. If the show can do one company that much good it surely should be of some benefit to all who exhibit, if they have the goods.

A large number of representatives from Big Rapids, Greenville, Grand Rapids, Holton, and other nearby cities and towns were in attendance at the last meeting and went away feeling much more enthusiastic about the business than ever before. It was interesting to listen to the testimonials and experiences of some of the newer fox breeders, and many of the more experienced breeders learned something from their newer brothers in the business.

The secretary read a brief which was submitted by B. Graham Rogers of Summerside, P. E. I., Canada, in which he recommended that the Fur Auction Sales Companies adopt some uniform system of grading Silver Fox pelts on the fur market. He also recommended that all Silver Fox pelts valued at \$75.00 or less be listed separately in the catalog and given some trade name other than Silver Fox. This, as Mr. Rogers says, would appeal to the fur buyers as they would not have to wade thru several hundred inferior pelts to find the types that met their requirements. Such a plan would also give the Silver Fox industry a better rating to the general public who might watch the trend

of the fur sales with a view to going into the business. The average layman does not realize that the big majority of Silver Fox pelts on the market are from foxes that are culled from the ranches, and the prices received for Silver Fox pelts on the Auction Sales might discourage him. By calling the inferior pelts, "Sundry Fox," or some other name, the returns for real Silver Fox pelts would be much greater. After the reading of this brief it was unanimously voted that the secretary be authorized to attach the seal of the association and his signature to the brief, giving it the endorsement of this association.

Mr. Robert A. Pfeiffer who acted as one of the judges at both the 1920 and 1921 Live Silver Fox Shows at Muskegon, and who has recently taken out associate membership in the association, is manager of the sales department of the firm of Traugott, Schmidt & Sons, a large fur house of Detroit. Mr. Pfeiffer met with the board of Directors recently and presented a brief in which he outlined a proposition whereby the members of the National Association might pool their pelts thru the association and thereby realize much bigger returns than it is possible for them to by sending them to any fur house they might happen to hear of. The proposition looks to be exceptionally good and especially so for the breeder who has but a few skins to market each year. This brief was read to the members at the last meeting and very favorable comments were made in its behalf. As there is no need for immediate action, however, it was laid over for further consideration. The members will all be advised further as the details in the near future are given an opportunity to express themselves.

These "Get-together" meetings are becoming very popular, and the office is in receipt of many complimentary letters regarding the practise.

At these meetings all members who bring with them a new member are not charged for theirs nor the new member's plates. This has netted the association a number of new members at each banquet. At the last one ten new members were signed up. A number of the new members have expressed themselves to the effect that they felt they had received their money's worth at the first meeting.

A committee has been appointed to revise the Constitution and By-Laws of the association, but their final recommendations have not yet been presented. There is some discussion as to the advisability of making our membership open to the world. Of course this is a NATIONAL Association, but we want to be as broad as possible. Whether or not letting down the bars on membership would be consistent with the nature of the organization is a matter for the members to decide. We have a number of applications on hand now from our Canadian friends, and these are being held pending the change in the by-laws, if any. Mr. B. Graham Rogers writes as follows, "Personally, I think very highly of your association, and the live way it is going about things, and I certainly would like to become a member. I have some fox interests in the United States, including the ownership of an interest in a couple of Companies. Another thing that has always appealed to me about your

Association is the fact that you hold regular meetings for the discussion of all kinds of subjects of interest to everybody in the business, and your idea of luncheon meetings is certainly the right and only one to keep up steady enthusiasm in the way that you are trying to do."

Members of the National Association are able to purchase fox food and supplies thru the association at a marked discount. Champion Fox Biscuits that retail at 7½ cents per pound may be purchased by the members at 6½ cents per pound. All orders must be accompanied by a remittance of the full amount of the order and mailed thru the association. The orders so received will be mailed to the company and they in turn will ship direct to the members. Freight charges to be paid by the member upon receipt of shipment.

In the future all foxes registered in the advanced registry of this association must be tattooed in the right ear with the ranch initials, and in the left ear with the ranch number given to that particular fox. For instance, if a rancher has on his ranch 50 foxes he might number them consecutively from 1 to 50, and each fox would have a different number from that of any other fox on the ranch. If the name of the ranch happens to be "Black Beauty Silver Fox Farm" you should have the prefix, "Black Beauty" registered and indicate on your application for registration that you desire to use the initials "B B" in marking your foxes. This will insure you against anyone else using the same initials in marking their foxes. In case of losing a fox you will always be able to identify it by the ear markings.

We expect to have tattoo instruments on hand ready for distribution to the members within a very short time. These will be disposed of at cost which will be less than the retail price on account of our buying them in quantities. Before these are issued to any member he must have made application for the registration of his ranch name or prefix and indicated the initials to be used in marking the foxes. With each outfit will be enclosed the steel initials for his particular ranch, and also numbers for marking the left ears. We urge each breeder to get his ranch name registered at the earliest possible date so there will be no delay after the tattoo outfits are ready for distribution.

During the past month we have added 21 names to our list of members. This makes the National by far the largest Fox Breeders Association in the world. The members should feel very proud of this because we are one of the last to be organized. This rapid growth can be accounted for by the splendid spirit of cooperation and support given it by the members all of whom are live wires and boosters who have the good of the industry at heart.

Recently Mr. B. Graham Rogers wrote an article in which he urged the formation of an International Association to take care of matters of an international nature, such as the control of the Silver Fox fur market, standards, etc. This suggestion appealed to the president and secretary of this association and Mr. Rogers was immediately informed of this fact. We believe that such an association would appeal to every broad minded fox man and there is no reason why such an organization could not be accomplished.

Mr. Chester McLure was present at a special meeting of the Association recently and gave us a number of good pointers and things to think about. He informed us that he and Mr. Rogers would get to work on the Universal Standard very soon and work out the details and submit them to the various associations for their approval. While the four associations have adopted the Universal Standard in skeleton, still the details have never been submitted, but were left to Mr. McLure and Mr. Rogers to work out. As

soon as we get the report from Mr. McLure the members will be advised. We hope to have a satisfactory and workable standard to be used at the Third Annual Live Silver Fox Show to be held in Muskegon in 1922.

We have been working for the past two weeks getting copy ready for the printer so that he may begin working on our herd book. We have about 1200 foxes registered that will appear in the first volume. We will include any others that may come in up to the time our copy goes to the printer, so if you want your foxes listed in the first volume you should get your applications in as soon as possible. If you need application blanks, notify the secretary, 204 Rosen Block, Muskegon, Michigan, and he will forward you a supply. It will probably be about two weeks more before the herd book is ready for the printer.

Mr. George Hume, manager and care-taker on the Marsh & Cannon Fox Farm, Muskegon, reports a litter of nine pups. They are all doing very well and are now four weeks old. This is the largest litter that has been reported to this office. We would be glad to receive the reports from all the ranches.

The office has a number of bulletins of various kinds pertaining to the Silver Fox industry and we are pleased to send any of these to beginners in the business or anyone seeking information. There is no charge for these.

We are in receipt of a communication from Dr. W. G. Church, Canadian Veterinary Inspector of Foxes, in which he advises us that he will be at our next regular meeting, Wednesday, June 7th, to give a lecture on the Silver Fox industry. Dr. Church spends most of his time visiting the Fox Farms thruout Canada and making inspections for the new Canadian National Fox Breeders Association. He should have something of real interest for those who find it convenient to attend this meeting.

It is quite likely that the next meeting will be held in connection with a banquet again. Further information regarding this meeting will be sent to the members in the next circular letter which will go forward in a few days.

We again beg to call your attention to the necessity of sending in your applications for registration at the earliest possible date in order to have your foxes appear in the first volume of the Herd Book. If you have foxes that scored 85 or more points at the 1921 Fox Show they are eligible for advanced registration. A separate chapter in the Herd Book will be devoted to Advanced Registry Foxes. Breeders who have foxes listed in this chapter will no doubt derive a great deal of benefit from it. Send in your applications now.

As you know, the advanced registration fee is now only \$3.00 in addition to the ordinary registration fee of \$2.00, and any applicant sending in enough applications to net the association \$100.00 or more will be allowed a discount of 20%. In other words, 20 registrations at \$5 each will really cost you only \$80. Two of our members have already taken advantage of this opportunity, one sending in 44 applications for advanced registry, and another, 21.

Remember:

1. Our next meeting June 7th.
2. To have your foxes registered at once.
3. To order your fox supplies and tattoo instruments thru the Association.
4. To have your Ranch Name registered.
5. To send in your application for membership.
6. To send in photographs of your ranch to be framed and displayed in our office.
7. That the National Association is the largest Fox Breeders Association in the world.

THE FUR MARKET

The Spring Auction Sales held by the various Fur Auction Companies in the United States, Canada and England, have just been completed. Although all the reports in detail have not been received at the time we go to the press, indications are that although the market was rather slack and prices on many furs lower than last winter, the staple and better grade of American furs remained steady and sold well. Clear Silver Fox skins were in good demand at all auctions. Fred'k Huth & Co. even reported an increase in price over their preceding winter sales. Canadian Auction Sales Co. report a top price of \$380.00 for Silver Fox, while the New York Auction Sales state that there was a keen demand for good skins. Prices on the whole, however, have been ten per cent lower than at last winter's sales.

Muskrats remained firm in some cases even advancing ten per cent on the northern skins, while the average ran about \$2.00.

Skunks, especially black and short stripe, sold well, the same prices being realized as last winter.

The Spring Auction Sales have followed a period of widespread slack buying. It, therefore, can be expected that furs as well as food and other goods must come down a little. Notwithstanding the dullness of the market, the attendance to the Auction Sales was well attended by many buyers from all parts of the country. The Cloak and Suit Industry was well represented, which indicates that this trade is again contemplating on using furs for trimming purposes.

The following table gives the approximate average and top prices realized for American Furs.

*Spring Auction Sales**Average and Top Prices Realized for American Furs*

Silver Fox—Declined 10%, good clear skins	\$300.00 to	\$380.00
Cross Fox—Declined 10%	20.00 to	105.00
Red Fox—Declined 15%	13.00 to	20.00
Blue Fox—Declined 15%, sold well	35.00 to	150.00
Muskrat, Northern—Spring caught, advanced 10%	2.50 to	3.00
Muskrat, Eastern—Unchanged	2.00 to	2.50
Mink, Eastern—15% decline	10.00 to	15.00
Mink, Western—20% decline	8.00 to	10.00
Marten	12.00 to	82.00
Skunks—Unchanged, blacks and shorts...	3.50 to	4.50
Raccoon—Advanced 15%	5.00 to	7.50
Beaver—Unchanged	11.00 to	35.50

SPLENDID PRODUCTION

John Callahan, Manager of The Mohegan Silver Black Fox Company of Raquette Lake, N.Y., which is the ranch owned by J. Pierrepont Morgan, dropped in at the office of the AMERICAN FOX AND FUR FARMER last week and reported splendid litters. Cora, one of the females purchased of The Adirondack Mountain Silver Black Fox Company, had a litter of six beautiful pups. Mr. Callahan stated that owing to the fact that it was not the intention of Mr. Morgan and himself to establish a large ranch that they were willing to dispose of nine 1922 pups. The advertisement of this ranch will be found in another column.

When writing advertisers, please mention that you saw their advertisement in the "American Fox and Fur Farmer."

CLASSIFIED ADVERTISEMENTS

Under this heading classified advertisements up to 100 words will be inserted at the uniform rate of 5c a word, payable in advance. A discount of 10% will be allowed on yearly contracts for this service. Send check with order. We are of the opinion that these short advertisements bring splendid results at a very small cost. No preferred positions are allowed.

WANTED—Two pair Live Beavers; one pair Live Fisher; one pair Live Otter; and your address if you are interested in securing Interior Alaska "Sterling Silver" Foxes of World's record pelt values. "Sterling Silvers" pay BIG DIVIDENDS. ALASKA SILVER FOX FARMS, Lake Placid, N. Y.

FOR SALE—A few fine 1922 pups from the finest strains of Silver and Black Foxes. Lake Erie Silver Fox Co., Ashtabula, Ohio.

CLOSING OUT TWENTY PAIRS CROSS FOXES—Some produce Silvers in litters and are as valuable as blacks. Two hundred Silver Blacks to select from pelt value. Ten percent. down, balance as convenient. TODD BROS., Milltown, Maine.

RADIOL OINTMENT recommended for Mange, Eczema and all skin ailments. Postpaid \$1.00. RADIOL LABORATORY, 4193 Vine Street, Cincinnati, Ohio.

WANTED—100 young Red and Grey Foxes. ROSS BROWN, McFall, Alabama.

JOIN US. Start Silver Fox Farming. Beginners taught on our large, modern ranch, if desired. Capital unnecessary. Wonderful business opportunity, restricted to a few. Would you be satisfied if you could market annually twenty or thirty Silver Fox Pelts? Write today. Semmelroth Association, Grand Rapids, Minnesota.

FUR FARMING—Now is the time to begin Fur Raising. Send \$1.00 for Fur Farming, a book of 278 pages with chapters on raising Fox, Mink, Skunk, Coon, Opossum, Muskrat, Etc. A 32 page descriptive booklet free. A. R. HARDING, Publisher, 75 North Ohio Ave., Columbus, Ohio.

VICTORY FOXES—We own Victory Bob, score 94 11-12 (first prize, class two) and Victory Chief, 94 1-6 (third prize, class one) Muckegon Show, 1921. Fine lot of pups this year to choose from. Satisfaction guaranteed. Terms if desired. VOLMARI & HUGHES, Muckegon, Michigan.

WIRE NETTING—All grades. Lowest prices. List free. Successful Mink Raising book 25c. DAVIS FUR FARMS, St. Johnsbury, Vermont.

WHEN YOU WANT the most beautifully fared, prolific Northern Ontario, pure bred foxes. Foundation stock direct from P. E. Island. Registered. Write Sault Ste. Marie Silver Fox Farm, Heyden, Ontario, Canada.

SILVER BLACK AND CROSS FOXES. Second to none. AUGUSTINE, Whitehall, Wisconsin.

SILVER BLACK FOXES—I am offering a few pair of pups from our registered stock at a very low figure. Also a few pair of dark crosses, proven breeders. Roy W. Johnson, North Berwick, Me.

DON'T THROW AWAY GOOD MONEY buying POOR foxes. Buy pure bred silvers, duty free, registered Canadian National Live Stock Records, Ottawa. E. M. MacDOUGALL, West Gore, N. S.

WHY NOT BECOME A FUR FARMER? Order your Silver Fox, Mink, and Skunk now for fall delivery. I ship on approval. Not one dissatisfied customer. Z. ALVIN GOFF, Lovells, Mich.

WANTED—Ranch manager and veterinarian, experience for silver fox ranch. Willing to invest \$5000 in shares in a \$100,000 company. Welcome full investigation. Only bona fide applicants considered. Letters: Address "Ranch Manager," care of "American Fox and Fur Farmer," Utica, N.Y.

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This is setting an advance styles, as it were, for there has not been an appreciable reduction in the cost of running a large New York hotel.

If, however, the public esteems the spirit in which it is done, as much as the management of the McAlpin and Martinique appreciates its patronage, then indeed, is it worth doing.

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See full announcement inside.

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A Complete Re-organization



With this issue of the "AMERICAN FOX AND FUR FARMER" occurs a complete re-organization. The support accorded this publication since its first issue has encouraged those who started it to such an extent that they now believe the time is ripe to branch out into wider fields of usefulness to the fox rancher and fur farmer; hence the "AMERICAN FOX AND FUR FARMER" has been re-organized and has selected as Editor of the publication, George A. Jeffreys, who needs no introduction to our readers.

Mr. Jeffreys is a wide awake, concientious, able advocate of and a firm believer in all that is best in fox ranching and fur farming. His articles in former issues of this publication have attracted country-wide attention.

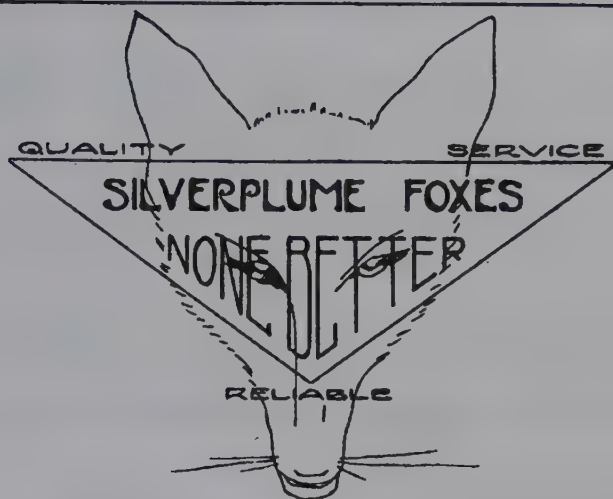
The policy of the publication will be "A square deal to every reader of and advertiser in this publication."

Mr. Jeffreys has had a wealth of experience in fox ranching, as well as fur farming in general, and with a staff of able assistants, will be able to give to the ranchers of the country such aid in their problems as has never been attempted heretofore.

In return we expect to receive the united support of every rancher. The new corporation modestly makes its bow to the fur farmers of the world.

We thank every patron for past favors and bespeak for the new management and for Mr. Jeffreys, the new Editor, an even greater measure of commendation and encouragement.

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| "NEWER KNOWLEDGE OF NUTRITION," by E. V. McCollum. The latest discoveries in vitamins and food values are fully explained and illustrated in this valuable book. | \$3.80 |
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| "THE FUR TRADE OF AMERICA," by Agnes Laut. A valuable hand book on furs and the fur trade of North America. | \$6.00 |
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American Fox and Fur Farmer

An International Publication Devoted Exclusively to The Silver Black Fox Industry
And Fur Farming



CONTENTS FOR JUNE

	<i>Page</i>
Editorial	6
The Production of Fur-Bearing Animals a Growing Enterprise, by F. G. Ashbrook	8
The Skunk As An Asset, by Ned Dearborn, D. Sc.....	10
Water Areas As An Asset to the Northwest And a Necessity to America, by H. J. LaDue, Assistant Game Commissioner of Minnesota.....	13
Blue Fox Farming on the Islands of Alaska, by C. E. Zimmerman.....	16
The Caretaker's Department.....	17
Technic of Treating Adult Foxes with Carbon Tetrachloride	
Big Head in Foxes	
Separation of Young Fox Pups	
Disarming Skunks	
Questions and Answers	
From the Ranches.....	20
Associations	21
National Silver Fox Breeders Association	
American Fox Breeders Association	
American Game Protective and Propagation Association	
The Fur Market	27

AMERICAN FOX AND FUR FARMER

An International Publication Devoted Exclusively to the Silver Black Fox Industry and to Fur Farming

Published Monthly by The American Fox and Fur Farmer Publishing Company, 406 Arcade Building, Utica, New York

GEORGE A. JEFFREYS, Editor

C. L. ROBINS, General Business Manager

SUBSCRIPTION TERMS—United States and Canada \$3.00 Per Year. Foreign \$5.00.

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Vol. I

JUNE, 1922

No. 12

OUR entire July number will be devoted to "Ranch Construction." In this issue will appear drawings and photographs of some of the best types of successful ranches in the country.

If you are planning on building, revising or adding to your ranch, it will pay you to obtain this number.

There have been many improvements made in the circular type of ranches, as well as on the square type and modified forms.

These plans alone would cost you more than the subscription price of any magazine.

"The American Fox and Fur Farmer" has gone to considerable expense in obtaining these plans and data and we are glad to offer them to our subscribers.

The "Caretaker's Department" will contain many instructive items from the caretakers of the most successful ranches; also an interesting article on "Locating a Fox Farm."

Order your extra copies now.

Editorial

OUR AIM

Our readers will probably notice that with this issue there are a number of changes.

Our reading matter has been divided into departments. All similar subjects are grouped under one heading. We also have included a "Contents" page. We believe with this arrangement the reader will be able to get to the subjects he desires quickly and intelligently.

We are continually striving to improve our magazine and we believe that our articles come from the pens of the best authorities in America.

We desire to call attention to Mr. Harry LaDue's article, which we believe would prove interesting to every wild life conservationist.

We know there are fox and fur farmers in the United States and Canada who can write some excellent articles on special phases of fox and fur farming according to their experience. We believe that such articles would be of immense interest to our readers and we would appreciate receiving any such material.

CO-OPERATION

"The American Fox and Fur Farmer" will be twelve months old with this issue. During these past twelve months we have watched with interest the rapid development of the fox and fur farming industry and have spared no efforts to keep abreast of this marvelous growth.

We are glad to announce that our re-organization makes it possible to make this magazine international in scope.

We desire to boost and develop the industry as a whole in the United States as well as in Canada.

Silver fox pelts produced by fox ranchers will be placed on the fur markets of the world. If full value is to be realized by the ranches for their silver fox pelts and if these sales are to be popularized and a demand created, then the fox ranchers in all countries must find a method of co-operation.

Associations must be formed, international in scope; then an International Association, with its Publicity Agency, is the only logical conclusion.

This publication pledges itself to support:

First—The formation of an association National in scope;

Second—A Co-operative Pelt Marketing Agency, preferably controlled by the United Fox Breeders Association;

Third—An International Association, with a similar Publicity Agency for popularizing and creating a demand for silver fox pelts.

STATE ASSOCIATIONS

Statistics show that the number of fox farms in the United States have more than doubled in the past year. This means that there are a number of States that have enough persons engaged in fox farming to form a local association.

Government experts and those who have made a study of the problem have shown that local associations are a benefit to the fox farmer and are likely to form the material for a foundation of an association national in scope.

These local associations not only take care of local problems and local legislature, but help to promote a spirit of good fellowship among their members. What rancher would not drive a few miles in his own State two or three times a year to hear the foremost plant breeder explain a new discovery of heredity, or hear a Government poultry expert, or some renowned dog breeder show how he originated a new strain? A social supper, addresses and new ideas of other ranchers would go a long way towards building up the local industry.

New York, Pennsylvania and New Jersey could very well organize a New England Association. Wisconsin and Minnesota could each have associations, while a Western Association would take in Washington, Oregon, Idaho and Montana.

It is true a Co-operative Marketing Agency for selling silver fox pelts is needed, but such an agency must be controlled by an association of fox men, national in scope. We need local associations to build an association national in scope and then we may look to a Co-operative Marketing Agency. Then an International Association, and finally an International Agency to advertise and popularize the silver fox furs.

A SQUARE DEAL

We desire to call the attention of the different fox ranchers and advertisers in our magazine that the management of this publication has no "strings" tied to it by any fox ranch. It is devoting itself to giving every advertiser a square deal. All undesirable and unreliable advertising will always be eliminated. Our main desire is to be of service to the whole industry and this can only be done by playing square with every rancher. We desire to give every fox and fur farmer an equal chance.

WHAT SHALL WE PRINT?

This publication is continually trying to be of actual service to our readers. We desire to improve our publication and to add many new features. We, therefore, would appreciate any advice or suggestions from our readers, or expression as to what kind of articles are desirable. We realize that each one

of us, to learn something, must begin at the beginning. There are practically two classes of people whom we must serve. There is the experienced rancher who has raised foxes for a number of years who can appropriately be called a graduate and is in position to learn the theoretical and scientific side of fox farming. Then there are those who are just beginning to be engaged in the industry and who require to be instructed with the rudiments of fox farming. The boy in the primary class, just learning to read, cannot be expected to converse with a book of a college grade. Neither does the college student care anything about the primary book. This publication recognizes such two classes. We, therefore, are striving to take the primary student, instruct him and advise him through our "Caretaker's Department" and graduate him into the expert class.

THE FOX INDUSTRY GROWING

In comparing Mr. Ashbrook's final estimates with the figures of 1921 of the number of foxes in captivity, number of ranches, and total investment represented, we find that the industry in the United States has more than doubled in proportion.

	Ranches	Foxes	Investment
1921	215	4,849	\$4,279,830.00
1922	500	13,000	\$8,000,000.00

We can safely predict that the year 1922 will produce more than 1,000 ranches.

PRIBILOF ISLAND FOXES MAY BE SECURED FOR STOCK BREEDING

From Petersburg Weekly Report, May 5, 1922

Interesting itself in the needs of the fur farmer and prospective fur farmers, the Biological Survey has obtained arrangements by the Bureau of Fisheries whereby Pribilof Island blue foxes for breeding stock may be more readily obtained by private operators for infusing new blood into farms already established or for original stocking, according to E. P. Walker, Chief of the Biological Survey in Alaska. The Pribilof blue foxes are generally conceded to be the best stock and many parties have desired to obtain breeding animals from these islands.

"Arrangements have been made for a limited number of 1922 pups to be delivered at Unalaska the fall of 1922 for \$175 per animal," said Mr. Walker. "So far as is possible efforts are to be made to connect with the regular mail steamer Star at Unalaska so that there may be the minimum delay in reshipping to destination. In addition arrangements are being made for satisfactory care of the animals at Unalaska, and the Biological Survey representative, Donald H. Stevenson, with headquarters at that point, will do all in his power to render assistance in facilitating parties obtaining animals.

"Requests for animals may be made direct to the Bureau of Fisheries, Washington, D. C., or through the Biological Survey, Washington or Juneau offices. After arrangements are completed for the number of animals to be delivered, arrangements for payment and delivery will be with Mr. A. H. Proctor, superintendent of the Pribilof Islands.

"Doubtless the best arrangement for many parties desiring foxes would be for several to join in sending one representative to Unalaska to meet, pay for, and receive the foxes, and accompany them to their destination. The Biological Survey representatives will be glad to assist in bringing parties into touch with each other who desire to undertake such arrangement."



LT. F. G. ASHBROOK

Frank G. Ashbrook, of the Biological Survey, U. S. Department of Agriculture, will leave Washington on June 16 for a three months' trip to Alaska in order to carry on extensive investigations on fur farms on the islands in the southern and southeastern part of the Territory, including the Kanai Peninsula. During the past two years he has been conducting similar studies on fur farms in the United States and Canada. He will join Ernest P. Walker, Chief Fur Warden of the Biological Survey, on the Bureau's launch, Sea Otter, at Dutch Harbor, Unalaska. The Biological Survey and the Forest Survey of the U. S. Department of Agriculture have issued a joint call to the fur farmers of Alaska to meet at convenient places to discuss problems with a view to improving conditions and establishing organizations where feasible. Mr. Ashbrook and Mr. Walker will attend as many of these meetings as possible.

Allegan, Michigan, June 3, 1922.

American Fox and Fur Farmer
Utica, N. Y.

Dear Sirs:—

Just a line at this time to let you know that I have 150 per cent of pups, with a total loss of only one pup to date, from any cause.

I wish also to compliment you on the May number of *our* magazine and thank you for the large part the "American Fox and Fur Farmer" has played in my success.

Respectfully,

BOX-ALDER SILVER BLACK FOX FARM,

George R. Barnum.

FOOD NUTRITION IN FOXES

Many inquiries are coming in in regard to the series of articles published sometime ago in this magazine on "Food Nutrition In Foxes." To meet these requests, Mr. Jeffreys is making arrangements to have this article printed in book form. Persons who desire this pamphlet can obtain a copy at a nominal charge.

The Production of Fur-Bearing Animals A Growing Enterprise

By F. G. ASHBROOK, Assistant Biologist

The Importance of the Fur Industry

The modern fur trade has developed tremendously in the past twenty-five years, and with this advance the United States has grown to be the largest fur market and fur consuming country in the world. Many thousands of men and women make their living from furs and in turn contribute to the comfort of a great many people. Ever since man has worn clothing he has drawn upon the natural supply of skins and furs. The permanent existence of an industry the finished product of which is so much in demand is assured. The value of the fur industry in producing a most important article in our domestic as well as our foreign trade can not be overestimated.

What Fur Farmers Should Realize

The production of fur-bearing animals in captivity is practically a new industry and authentic information regarding it is being asked for from many quarters. The problems to be solved by the fur farmer are very much the same as those arising in other live-stock undertakings. They include a knowledge of species, temperament, feeding and breeding, proper sanitation, diseases, and parasites. Those engaged in fur farming should remember that they are handling wild animals in captivity and not domesticated stock in the ordinary sense of the term. It is true that fur-bearers raised in captivity tend to become more docile than those in the wild state but are in no sense fully domesticated animals. The fur farmer should be able to grade pelts and know market requirements and values, if he is to operate his business profitably. His harvest is pelts and he should be in position to know when the skins are of best quality and primeness.

Relation of the Biological Survey to the Industry

One branch of the work carried on by the Biological Survey, U. S. Department of Agriculture, has a direct practical bearing on the production and conservation of fur-bearing animals. In developing this line of work the policy has been to maintain an open-minded attitude toward all phases of the fur industry. Encouragement has been given to the enactment of such laws as will prove effective in the conservation of fur-bearing animals, with a view to establishing the fur industry on an honest and permanent basis. The information furnished by the Biological Survey to prospective breeders as well as those already engaged in this business is for the purpose of assisting them in overcoming obstacles and avoiding pitfalls common to the industry.

A questionnaire is sent out annually to persons engaged in raising fur-bearing animals in the United States. It is very difficult to obtain authentic information because many breeders decline or neglect to fill out and return the questionnaire blank while others give the information in such a manner that it is extremely difficult to interpret. The data collected by means of questionnaires are at best, therefore, only an approximation. The following statistics for 1921 were compiled from the replies received:

	No. of Breeders	No. of Animals
Foxes	231	6,702
Skunks	46	1,947
Minks	19	170
Raccoons	27	131
Opossums	8	86
Martens	6	74
Muskrats	5	..
Squirrels	3	86
Beavers	1	10

The fur farms reporting were distributed throughout the following States: California, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania, South Dakota, Texas, Vermont, Washington, and Wisconsin.

Judging from these figures, which are as correct a representation as it is possible to obtain under existing conditions, and from observations made in the field by representatives of the Biological Survey, it is estimated that 500 ranchers are raising silver foxes. There are between 12,000 and 15,000 foxes in captivity, and the value of the investment is about \$8,000,000.

Studies of the adaptability of fur-bearers to produce fur of quality in captivity have been carried on at the experimental fur farm at Keeseville, N. Y. The animals confined there are red and cross foxes, skunks, raccoons, martens, and fishers. Experiments have been made concerning the feeding, housing, and management of these animals. The major part of the work, however, consists of studying the diseases and parasites of these animals. Experience shows that certain species of fur-bearers will reproduce in captivity but for some unknown reason the young rarely reach maturity.

It is impracticable for the majority of breeders to visit fur warehouses, manufacturing furriers, fur auction sales, and retail houses to familiarize themselves with these phases of the industry. This information, however, is obtained by representatives of the Biological Survey whose business it is to keep breeders well informed. This may be done through personal contact at the ranch, at public meetings and by publicity through the press and official bulletins.

For some time the Biological Survey has been endeavoring to obtain reliable statistics so as to determine with a reasonable degree of accuracy the annual kill of fur producing animals in the United States. This is one of the factors relating to fur-bearers upon which it has thus far been impracticable to obtain comprehensive data. Several of the State game commissions and other agencies interested in fur, either independently or at the suggestion of the Bureau are collecting data which combined with that already available will furnish a fairly accurate census of the fur supply of the country.

The importance of cattle, sheep and hogs is common knowledge but on the other hand comparatively few are aware of the enormous value of the furs taken annually in the United States.

Co-operation

If this important industry is to continue it will be necessary for the Federal and State governments, associations interested in conservation and the fur trade to do all in their power to conserve and to solve the problems regarding the source of supply. Intelligent work and co-operation is necessary to retain permanently all species of fur-bearers in sufficient numbers not to jeopardize the fur industry. It is desirable that State agricultural colleges and experiment stations and State game

commissions and conservation societies co-operate in promoting the raising of fur-bearing animals in captivity. Extensive investigations should be made in regard to their feeding, breeding, and general management. Parasites and diseases affecting fur-bearers should also be studied.

Fur farming is a commendable and valuable adjunct to the fur industry and occupies an important place in the general scheme of conservation. Future developments only will show the extent to which this industry may become effective in increasing the production of fur.



Medieval Sleeves, high crush collar, ornamental clasp and silk belt
give this coat of Persian Lamb, trimmed with Kolinsky,
an air of dignity and refinement

Shown by Cohn & Rappaport, New York, at the New York Fur Fashion
Show on April 26th

Photograph by Tornello
(Courtesy of "Fur Trade Review")

Skunk as an Asset

By NED DEARBORN, D. Sc.

French pioneers in America named the skunk "enfant du diable," literally, child of the devil. Knowing the peculiarities of the animal, we are not surprised to learn that new comers to this land of the free and the brave took umbrage at the ease, energy and dispatch with which he compelled them to respect his rights. Naturally they relieved their outraged feelings by giving him a hard name. Although the particulars are not recorded, the imagination readily depicts a stranger attempting to kill or capture a black and white creature somewhat resembling a cat, which responds not with tooth or claw but with a jet of fetid liquid so acrid and nauseous as to suggest at once an infernal source.

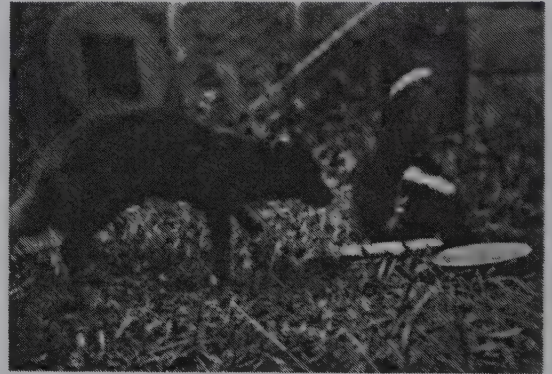
The Cologne Dispensers

The predominating feature of the skunk is the highly odoriferous secretion of two glands situated one on either side of, and a little below, the tail. Other members of the family in which naturalists have classified this animal, including the otter, mink, weasel, marten, fisher, wolverine and badger, are similarly equipped with glands for secreting malodorous fluids. The original use of peculiar scents was probably to assist in bringing together the sexes of these solidary hunters in the breeding season. In the course of evolution the quality and amount of the secretion in the different members of the family were gradually differentiated and adapted to specific needs. In the case of the skunk it became a weapon so terrible that few animals voluntarily disturb a skunk more than once. Even those that are predaceous generally give it a wide berth, its most persistent enemy being the great horned owl. Skunks themselves dislike the odor of their own scent, and emit it only when in extreme danger. One that has defiled himself in a scrimmage is shunned by other skunks till he is clean again.

Food Habits

The food habits of skunks ought to be preached from the housetops and reiterated till every tiller of the soil and all his kin are indelibly impressed by them. Skunks are particularly fond of insects and mice, both of which are tremendously destructive to farm crops. In winter and spring, when their regular food is hard to get, they roam widely and sometimes find their way into hen houses. Possibly one in a hundred has the luck or the courage to enter a poultry yard, but that is sufficient to support the fallacious notion that skunks are noxious animals which should be killed at every opportunity. Fortunately this idea is not universal. Observant people have taken pains to identify the insects destructive to crops and to discover and foster the natural enemies of such insects. They know that potatoes and forage crops are seriously damaged by white grubs, and that skunks are very fond of these grubs and of the beetles producing them. When they see fields covered with shallow holes they say: "there are skunks about, this land is badly infested with white grubs." The farmer who knows and appreciates the good qualities of these useful animals builds tight poultry runs and endeavors to retain their services by protecting them from over trapping and by feeding them on butchers' offal in cold weather to keep them from wandering away from his premises. If one of them takes up his abode under the barn, it is probably because the barn is infested with mice. Skunks are excellent mousers and if sufficiently abundant would save

American farmers millions of dollars worth of grass, grain, and fruit trees every year. Their keen noses and long claws enable them to unearth field mice almost instantly. In this respect they surpass cats, which are obliged to wait for mice to emerge from their burrows. Grasshoppers, crickets, beetles, cicada larvæ, and many other insects passing more or less of their existence on or in the ground, are eagerly sought by these valuable animals which, if properly conserved, would become the cheapest, most reliable and most efficient crop insurance obtainable, against the depredations of terrestrial insects and mice.



THE DANGER SIGNAL

Skunk Fur

Skunk fur has several desirable qualities. It is of medium length like that of the marten and sable, which it further resembles in being erect and fluffy. The under fur is fine and silky while the guard hairs are durable and glistening. The usual color pattern consists of two white stripes, one on either side of the back, extending from the crown of the head to the tail, the rest of the body being black. The white hair is decidedly longer than the black, and seems comparatively coarse and lusterless. The choicest pelts are black, with the exception of a spot of white on the crown of the head. They are worth about five times the value of broad striped skins. Notwithstanding the real worth of this fur, such has been the prejudice against skunks that only within a few years has it appeared in retail stores under its own name. Formerly it masqueraded as Alaska sable. It makes up into very attractive muffs, stoles and trimmings for coats. The value of skunk fur has increased with its popularity. Broad striped skins, which formerly brought the trapper 10 cents, now bring a dollar or more, while black skins, formerly worth a dollar, now bring from three to five dollars. High prices have stimulated excessive trapping and skunks are becoming fewer. Twenty-three states have enacted laws for their protection during an annual close season, when their fur is unprime.

Skunk Hunting

The ordinary method of catching these animals is to set steel traps in their burrows or around a bait of meat. Entirely

unsuspicious, the poor creatures after being caught often suffer many hours with mangled legs before being put out of their misery. In the vicinity of dwellings, box traps may be used, the captives being inodorously disposed of by drowning. In response to a demand for uninjured skunks for breeding purposes, night hunting has begun to supersede trapping in certain localities. The skunk hunter fares forth across field and pasture after nightfall with a lantern, a dog and a gunny sack. The dog ranges to and fro, finds a skunk, and barks loudly for his master. The hunter approaches, sets down the lantern, deftly lifts his quarry by the tail and drops it in the sack. There are likely to be several tenants in the sack before morning. If the hunter is deliberate and has a diplomatic dog, he need have little fear of retaliation from his victims. This manner of capture is real sport, and the returns from it are decidedly greater than from trapping. The demand for live black or short striped skunks for stocking fur farms is greater than the supply. As a rule, those suitable for propagation are worth about twice the current value of their pelts. A convenient way of finding a market for live skunks is to advertise in periodicals devoted to hunting, trapping and fur farming. In localities where the hunting method is practiced, they are usually handled by fur



HARMONY

buyers, who dispose of the better specimens to fur farmers and skin the rest. To one having but a smelling acquaintance with these animals, or who has dealt with them only on the gun and club basis, the experience of entering an inclosure containing a hundred of them, freshly caught, fully armed, confined in cages containing three or four skunks each, without detecting more than the slightest trace of their characteristic odor, is astonishing. Astonishment gives place to consternation as the keeper proceeds to open cages and bring out his stock one by one for inspection. The animals are either suspended or allowed to stand, but are always restrained by the tail, which is kept in a straight line with the spine. The visitor may handle them in the same manner without harm.

Skunk Farming

The most significant consequence of the increased value and popularity of skunk fur has been a determined attempt to produce it on domesticated animals in all the northern states from Maine to the Dakotas. Scores of people have attacked the problem with varying degrees of success. Some have become discouraged and given it up while others more favorably situ-

ated or better qualified to manage animals, are pleased with their results. The requirements of skunks in confinement in the way of inclosures, feed and remedies for disease are now well understood. They may be kept in cages eight feet square and two feet high made of 1-inch poultry netting or in yards surrounded by a fence built of poultry netting or boards. This fence should extend two feet into the ground and four feet above ground. At the top there must be an inward overhang a foot wide, when netting is used, to prevent the animals from climbing over. It is customary to keep breeding animals in pens or cages, singly, the young being turned out into yards, when they are weaned. Dens are made of wood, stone or large tile. The diameter of the entrance should be about six inches. The interior of a den should always be dry and have a capacity of about one cubic foot. Dens should be shaded in summer, banked or covered with leaves or straw in winter, and constructed so as to be dark within, yet easy of access for cleaning. Plenty of dry straw, leaves or other bedding should be provided.

The more important items on the bill of fare of wild skunks have already been mentioned. In confinement they are fed on milk, raw or cooked meat, cooked cereals and vegetables. When kept in connection with poultry, they fall heir to eggs candled out from incubators, and to the flesh of ailing fowls. Every fall there are wornout horses to be had for a few dollars, which provide cheap winter feed, and may be used the year through, after it has been dried. Meat for drying is ground, or cut into thin slices, spread on sheets of wire netting, and placed in an oven, a drying room, or over a slow fire out of doors. When completely dry, it should be packed in tight receptacles to exclude moisture and insects. It should be soaked in cold water or cooked before being fed to animals. Another way of preserving meat for future use is to cook it in water over a fire of moderate heat, then grind it with a quarter of its weight of boiled carrots and add three or four times its weight of graham flour or oat meal mixed with the broth in which the meat was cooked, adding water to give the mass a consistency suitable for baking. If designed for young animals, hone meal, amounting to three or four per cent. of the dry cereal constituent, should be included. This mixture is baked in sheets half an inch thick, and dried until there is no danger of its becoming mouldy. This bread, like the dried meat, should be stored out of reach of mice and dermestid beetles. Mush made of this bread and hot water or scalded milk is greatly relished by skunks and may be used as a staple diet for them. It is desirable to vary their food from day to day as much as possible. Carrion or other decaying matter invites disease and loss. One meal, given in the evening, is sufficient for adults, though young animals should be fed three times a day.

The color characters of breeding skunks are transmitted to their progeny. Full striped parents have full striped young; white capped parents have white capped young; and a full striped animal mated with a white cap will produce short striped progeny. The essentials of skunk raising are pretty well known. Given a climate producing a good grade of wild fur, and a reliable supply of cheap food, black skunks can be raised with profit.

Laws

All wild animals in this country are held to be the property of the state. In other words, all the people comprising the state have an equal joint interest in them. It is just and proper, therefore, that individuals taking such animals for private use should pay the state for them. This is usually done by means of a license fee required of those who hunt or trap fur or game animals. One who has complied with the law in capturing fur-bearers might naturally suppose that, being their legal and exclusive owner, he would be as free to keep them alive for propagation as to kill them for their pelts. This, however, is not invariably the case, as in several of the states, owing to an unfortunate misconception of the nature and possibilities of fur

farming in general, those who would keep fur-bearers alive must first obtain from the state game warden a permit, or pay annual license fees, or, in a few cases, even execute a bond in the sum of \$500 to be forfeited if laws protecting fur animals are not fully observed. In such states the assumption seems to be that people engage in fur farming for dishonest motives and would use their yards and cages to confine wild animals caught during the close season until the open season when their pelts are prime and may be disposed of legally.

Leaving the matter of integrity out of the question, let us look to the incentive offered by the average run of wild skunks for illicit traffic in them. Scarcely one in ten is so nearly black as to be worth raising for its pelt. Here is an illustration: Some years ago, before skunks were protected by a close season, a man skilled in catching animals was besought to remove a family of skunks from a neighbor's cellar. They were taken to a dilapidated building, reared to maturity and killed for their skins. There was no law to prevent this trapper from unearthing and rearing other families of skunks in subsequent years, but he did nothing of the sort. Why should he obtain young skunks by the sweat of his brow, feed them four or five months, and lose their services in destroying farm pests, when he could harvest them more easily in the fall in prime condition? One can afford to buy choice breeding stock at twice its pelt value and raise black skunks, but under ordinary circumstances, he positively cannot afford to raise the common run of striped skunks in confinement. If a person is disposed to catch skunks toward the end of the close season, he can do so without the equipment of a fur farm. Where then is the justice in requiring permits, license fees, and bonds of fur farmers and not of others?

Animals kept in inclosures, housed, fed, bred and reared for commercial or home use are domesticated animals, regardless of whether they were domesticated in this country or abroad, or whether or not there are other animals of the same kind living in the wild state. If it is necessary to protect the interests of the state by imposing fees and restrictions on raising skunks, by the same token it is necessary to impose them on raising ducks descended from wild mallards, and on turkeys. The domestication of ducks and turkeys has had no ill effects on those that are wild. On the contrary it has reduced the pressure on them, the demand for them now being mainly supplied from farm yards. Only by domesticating animals can they be made available for general use, or be made to contribute extensively and permanently to our industrial and commercial prosperity. For example: A fine pair of wild skunks, killed, stimulate trade by enabling their captor to buy a coat, which helps the merchant, the manufacturer, the workman, the wool grower and the cotton planter—once. At the same time they start a train of benefits, beginning with the raw fur buyer, and continuing to the fur dressing establishment, including the employees, the manufacturing furrier, and the fur merchant, and pleases the final purchaser—once, only once. The same pair, propagated, would confer these benefits, not once merely, but over and over, indefinitely. Fur farming is an infant industry with troubles of its own. It has arisen at the command of society and trade, and is following in the footsteps of older lines of farming—flattering. After considering all its aspects, near and remote, can we approve legislation designed to obstruct it?

More Skunks

Most of our fur animals, as the otter, beaver, mink, muskrat and raccoon, live in the neighborhood of lakes and streams. The marten, fisher and lynx are found in heavy forests remote from civilization, from which they invariably shrink. On the upland farms, where boys seek diversion and extra money by trapping when the laborious days of seed time and harvest are ended, there are only the fox and the skunk. As the fox is usually quite too crafty to be caught by amateurs, the skunk

is often the only fur-bearer in farming regions that boys can catch. Unfortunately for all concerned skunks are not abundant. There are not enough of them to give the boys a fair catch or to save orchards and crops from the depredations of insects and mice. Both the crops and the boys need about ten times as many skunks as there now are. If all skunks were black, instead of being mainly broad striped, their cash value would be increased about five fold.

Experiments in breeding these animals have shown that a pair of black skunks will produce black young; and that the progeny of a striped parent mated with a black one are better colored than the striped parent. Skunk hunting, as described above, might take the place of trapping, the striped specimens being killed and the black ones propagated. The black stock thus produced might be released in favorable localities during a close period which would give them time to multiply and become more or less scattered over the surrounding country. By this means the number of these useful animals might be greatly increased and their quality improved.

If a state operates pheasantries for the pleasure of those who shoot, and fish hatcheries for the gratification of those who fish, why may it not have skunkeries for conferring material benefits on farmers, trappers and furriers? No one familiar with the best practice in skunk farming doubts for a minute that, supported by popular approval, a project to place on any given area a number of black skunks ten times as great as the number of striped ones now living there, is perfectly feasible. A law prohibiting any person from hunting or trapping on land of another, and an adequate appreciation of the value of skunks, on the part of land owners, might be expected to keep them indefinitely ten times as numerous and five times as good as those we now have. Ten times five are fifty. As a strictly practical proposition, is it not worth while?



SKUNK SKINS—Grade I and II

Water Areas as an Asset to the Northwest and a Necessity to America

By HARRY JAY LaDUE

Next to heat the most potent element necessary to the comfort, well-being and in fact the very existence of man, is water. Without it the American continent would be uninhabitable, and faunal, floral and human life would disappear, all life would cease. Man, in his supreme egotistical belief that he is the beginning and end of all creation, has wasted with a profligate hand the wonderful natural resources that have been given into his keeping. Developing his inventive genius along destructive lines he has penetrated into the very heart of the wilderness and taken vast stores of minerals and forests. He has banished from the face of the earth, several species of valuable wild life and has dissipated priceless fish resources. With utter indifference, he is now striking at an element upon which his very being depends.

Forests may yet be preserved by replanting and by a conservative use of the remnant. Existent species of bird and animal life and of the denizens of the deep may be perpetuated by following the simple expedient of preserving a breeding supply. The water wealth of the continent once gone, however, can never be replaced.

God, in His infinite wisdom, created the only known form of perpetual motion, the unceasing distribution of light and water. Life depends upon the perpetual motion of these elements. Man can truly thank God that He placed the source of light beyond the reach of his meddlesome hands. Water, being of tangible form and having specific gravity, rests upon the earth and consequently contributes one of the elements amenable to human manipulation.

The Original Plan

Wonderfully simple is Nature's plan to furnish the life-giving waters to the earth's arid surface. Brilliant rays of sunlight stream down, bringing warmth and life. Wherever this warmth strikes water, evaporation follows and the vapors mount steadily into the void above. Under certain atmospheric conditions, ethereal beams appear to extend from the distant horizon to the blazing orb of the sun. Every child knows, the sun is drawing water. The vapor is concentrated into lacy cloud masses. Wafted here and there by the sun's powerful ally, the wind, they roll up into huge voluminous masses or spread out in long, tumbling rolls. Sooner or later they strike a strata of cold air emanating from the lake regions, the vapor condenses and the earth's surface is refreshed by a gentle fall of rain. After ministering to the thirsty of the plant kingdom, the water concentrates in the natural reservoirs provided by the Master Mind. The cycle is completed. The sun's rays reach down and draw the moisture again. The cycle begins anew.

Origin of America's Water Supply

Stretching from Northwestern Canada to the Gulf of Mexico and hemmed in by mountain ranges lies the greatest food producing region in the world. The center of this vast plains area has been likened to a huge, shallow pan from the edges of which spring forth the mightiest rivers of the continent to carry off the surplus water. From this pan the sun draws part of the moisture which later on the wind dispatches to the far corners of the plains area, bringing life to plant and animal alike. Moisture drawn from the oceans would traverse this area indefinitely, without a drop of precipitation, were it not for

the cooling effect of thousands of lakes and marshes on the atmosphere.

The catastrophe that will follow the destruction of this source of fresh water supply is apparent and inevitable. From a careful perusal of the future plans for huge drainage projects in the Northwest, one would imagine that modern man still believes, with childlike faith, that when he wants moisture all that is necessary is to appeal to the gods, who will thereupon attach a sprinkler to the celestial reservoirs and turn on the water. He will not live to realize his fallacy. Succeeding generations will endure the suffering caused by his thoughtless tampering with Nature.

Effects of Drainage

A considerable portion of the fresh water supply of the United States has already been destroyed through the application of misguided theory and the promptings of human greed. Pioneered with the aid of the shovel and pickaxe, the work of destruction is now going on apace with the aid of mechanical excavating devices and powerful explosives. Deep down in the rich loam lay tile drains sucking at every little hollow in the terrain. The water flows swiftly and steadily through man-made ditches into Nature's reservoirs, the lakes and marshes, or tumbles down a baby coulee, or ravine into a larger stream where it merges with waters headed madly for the ocean. Still greedy for lauded possessions and intent on facilitating the removal of the surplus water, now flooding the natural basins, man sets his ingenious contraptions at the outlet of the basin and proceeds to excavate an ugly, geometrical perfect outlet, which, when connected with the basin, rapidly drains off the precious water supply. In the meantime the sun continues to draw on the remaining reservoirs and the ocean and to precipitate condensed vapor over the earth's surface. With barriers dug away, the surface water madly seeks the lowest level, bringing devastating floods, and pestilence too, to the beautiful valleys through which it once flowed in peaceful serenity.

Is Drainage Necessary?

Are human beings so crowded in America that there is a dearth of tillable soil? Most emphatically, No! Only a small portion of America's productive surface has been scratched by the ploughshare. Even in thickly settled communities, the maximum of food production is still far from being a reality. Minnesota has a land area of 50,691,000 acres and a water area of 2,662,400 acres. Statisticians report that approximately 28,000,000 acres are being used for crop and livestock raising. Two-thirds of the remaining 22,000,000 acres can be developed to produce foodstuffs and livestock.

Why then, do we drain? What prompts such destructive schemes? Avarice, pure and simple. The prime instigators may be found in every community. Civil engineers, hand in hand with local financiers, county bond brokers, ditch contractors and politicians have successfully appealed to the cupidity of the owner of real estate bordering on inland lakes and marshes. Those of you who have resided in localities worked by this combination are familiar with the procedure. The engineer sells his proposition to the land owners. They, in turn, petition their local politicians and officials. After the survey and the issuance of bonds, the contracts are awarded to

the ditching contractor and the despoilation of one of Nature's beauty spots is well on its way. As with all plunderers, squabbles arise over the division of spoils. Litigation follows litigation, and the lawyer reaches in for his share. Who loses? The failure of the average project to accomplish results burdens the landowner with the first material loss. The greatest loss, however, will be borne by the millions who rely on our inland bodies of water to furnish them with wholesome outdoor sport, with toothsome fowl and fish, with warm garments fashioned from the pelts of fur-bearing animals and with humidity to nourish growing food plants.

Protests Futile

Heretofore, the only protest against this ruthless program has come from the sportsman and the trapper and the state department charged with the conservation of wild life. Their protests have been set aside on the ground that they were merely prompted by selfish motives and that their interests were relatively unimportant. Every sportsman and sportswoman, who loves to take little expeditions into the wild and to take therefrom a modest toll of wild life, is branded with the stigma of selfishness if they dare to step on the toes of commercial interests exploiting natural resources. The lumberman, the commercial fisherman, the drainage engineer, the land man and the farmer owning lake shore and timber property savagely tell you, "Hands off. This is none of your business." The sportsman and the trapper have long realized that the drainage of lakes and marshes has seriously reduced our supply of game, fish, wild waterfowl and valuable fur-bearing animals and consequently our incentive for getting in close and beneficial touch with Nature. They resent the accusation that they are prompted by mercenary principles and point with pride to the mighty efforts they have made to preserve natural resources for the use and enjoyment of the people of to-day and to-morrow.

Pecuniary Value of Water Areas

We are the guardians of the fresh water supply of America. Contrary to the preachings of drainage experts there will be no martyrdom incurred in the full performance of our duty. We are upon the threshold of an era which will bring to Minnesota a golden flood from every state in the union. Millions of pleasure seeking folks from less favored states are being attracted to the beautiful wooded, lake-studded landscape of Minnesota. Our gamey bass, trout and pike offer unparalleled thrills to the angler; our wild rice and celery marshes furnish unequalled wild fowl shooting. Camp and cottage sites on the sandy shores of thousands of limpid lakes await the coming of the horde. A few years ago an organization was formed to advertise the recreation possibilities of Minnesota known as the Ten Thousand Lakes of Minnesota Association. Statistics showing the increased influx of summer visitors due to the efforts of this association speak for themselves.

1916— 13,000 non-residents spent.....	\$ 750,000.00
1917— 17,000 non-residents spent.....	937,000.00
1918— 40,000 non-residents spent.....	1,500,000.00
1919—145,000 non-residents spent.....	6,000,000.00
1920—200,000 non-residents spent.....	10,000,000.00
1921—300,000 non-residents spent.....	15,000,000.00

Game and Fish Commissioner Carlos Avery has estimated that the intrinsic value of the wild life annually taken in Minnesota may be itemized as follows:

Commercial fisheries, lbs. 30,000,000.....	\$ 3,000,000.00
Angling, etc., lbs. 7,000,000.....	3,000,000.00
Game birds, 1,761,062.....	1,161,062.00
Deer, 20,000	600,000.00
Moose, 300	30,000.00
Small Mammals	500,000.00
Fur-bearing animals, 631,140.....	2,399,200.00

Total\$ 11,290,262.00

Add to this the \$15,000,000.00 income derived from the tourist traffic and we have a total of \$26,290,262.00 annually accruing from the exploitation of our lakes and the surplus of our wild life. Even hard-headed business men must admit that these natural resources are worthy of attention and that no effort should be spared to conserve and develop them. Thus our returns for furnishing moisture and humidity to the great plains area will be most ample and satisfying.

Water Level Rapidly Lowering

Drainage experts of late, have been careful in furthering their plans to emphasize the fact that they do not contemplate the destruction of lakes of sufficient depth to furnish boating and a habitat for fishes. They only have in mind the drainage of marshes and shallow lakes, the natural habitat of wild water fowl and several varieties of fur-bearing animals. They studiously avoid mentioning a fact which other states have realized to their sorrow. The gradual and persistent drainage of water areas has lowered the ground water level of the United States approximately nine feet. The U. S. Department of Agriculture made a survey of 15,000 farm wells in all parts of the country which proved conclusively that the underground water level is being gradually lowered. Thus has the ground water level of the State of Iowa been lowered 12.5 feet. The great Corn Belt of the central states is absolutely dependent on the reserve supply of soil moisture. The recurrence of disastrous droughts and crop failures in this area is causing grave concern. Thinking observers have gradually come to realize that the run-off of surface water through the open ditch is directly responsible for this condition.

Floods Result of Drainage

Disastrous floods in river valleys have forced thousands of affected landowners to band together in an organization whose sole aim is Flood Control. The destruction of natural reservoirs in the Minnesota River drainage basin has resulted in the annual flooding of approximately 100,000 acres of low lands with a resultant appalling loss of human life, live stock, farm equipment and field crops. And now engineers propose to sacrifice one-third of this area to serve as sites for huge reservoirs to be constructed at a cost of approximately \$2,000,000.00 and designed to hold back flood waters. The project appears to be feasible but costly. The accumulated waters will of course, be of no value to the uplands of the Minnesota drainage basin. In the year 1862 B. D. (Before Drainage), the storm and thaw waters were impounded in natural reservoirs from which the run off was gradual. Stream flow was constant. In fact steamboats were continuously in use on the larger streams. To-day the Minnesota River and similar streams are practically unnavigable. The writer has even been forced to portage a canoe in numerous places along the Minnesota River in mid-summer. The same conditions affect navigation on the upper Mississippi River.

In addition to the loss of navigability brought about through ill-advised drainage may be mentioned the loss of a potent power supply. Stream flow can be harnessed and made to produce an enormous amount of power. In fact it has been estimated that Minnesota streams are capable of developing about 574,000 horse power of water power. About 125,000 horse power has thus far been developed. If the sources of water supply are destroyed and the stream flow is not kept constant this power will not be available. Coal and oil and other fuel resources, once exhausted can never be replaced. When we reach that point and it is freely predicted that the time is not far distant, the water resources of the nation will be more carefully guarded than any other great natural resource. This guardianship should be established now.

Water Farming Possibilities

Contrary to public opinion, shallow marshes and lakes can be made even more valuable than the deeper lakes and especial-

ly to the land owners who are being importuned to drain them. "Water Farming" is a comparatively new innovation but nevertheless a venture that has proved remarkably profitable where thoroughly tried. One game farmer is deriving a big annual income by disposing of wild waterfowl bred in a state of semi-domestication. Others are rearing thousands of muskrats on small marshes. The pelt of this animal is a staple product in the fur industry and muskrat farming offers wonderful opportunities. Of late the possibilities in rearing beaver for fur has attracted attention and numerous experiments are now being conducted. The borders of marshes are the natural hunting grounds for raccoons, mink and skunk and furnish a good location for ranches devoted to the rearing of these fur-bearers. The lands surrounding lakes and marshes that is unfit for agricultural purposes provide excellent sites for deer and silver fox farms. These natural sites for fur or wild waterfowl farms will, under competent management, materialize into more profitable ventures than the grain and livestock farms surrounding them.

Drainage Projects Fail to Accomplish Results

The average attempt to drain marshes and shallow lakes with the hope of turning the bottoms into tillable soil results in failure. Hundreds of drainage projects have failed to produce promised results. Go into almost any community and bring up the subject of drainage and you will hear these failures cited by the score. Six years ago a valuable marshy lake, 3,000 acres in area, in Nicollet County was drained. The adjoining land-owners are still awaiting the fulfillment of the engineer's promises. The marsh bottom was found to be absolutely unfit for agricultural purposes. It was the natural catch basin for surface water from a large area of surrounding country and will always remain so. Thief Lake and Mud Lake in Marshall County are notable examples of the fallacy of our drainage laws. An elaborate system of ditches costing in the aggregate a million and a half dollars carried off the water from these two lakes. Both lakes were famous breeding grounds for wild waterfowl. Mud Lake is a real peat bog and of no agricultural value. Thief Lake had a hard clay bottom and parts of it have been utilized. The surrounding country is so flat however, that the ditches do not operate to carry off the water after heavy rainfalls. In 1919 the lake bed filled up and in 1921 was covered with a rank stand of sow thistles, smartweed and other rank growths. Before the ground water level of the region was lowered blue joint grass grew in profusion around the lakes while now only wire grass thrives. Years of bumper crops on the land actually reclaimed will not pay the average drainage assessment and compound interest on same.

Considerable publicity has been given to several bitterly contested drainage cases in Minnesota which eventually wound up in District Courts and the Supreme Courts. The Supreme Court has ruled that, "no lake can be drained which is capable of public beneficial use." Notwithstanding the splendid attitude of the court, the fact remains that ninety per cent. of the drainage projects, due to the lack of organized opposition, never reach the attention of this tribunal. This leaves our water areas to the tender mercies of every preying influence. The result does not have to be imagined. It is apparent throughout the state. Valuable marshes and lakes which we could ill-afford to lose have been turned into mudholes of absolutely no public or private beneficial use.

Scientific Survey Absolutely Necessary

We are not so foolish as to oppose profitable drainage of agricultural lands. We are, however, strongly opposed to Minnesota's present policy of "First go ahead, then be sure you're right." The determination as to whether or not the public usages of a lake or marsh in its natural form are greater in value than the usages that will accrue from drainage should

and must be arrived at before expensive technical surveys are made for the purpose of mapping ditch routes. To make a civil engineer the guardian of the state's most useful natural resource is the height of folly. 'Tis true a thorough hydrometric survey should be made of the northwestern states. Civil engineers should not however, function beyond the making of this survey. The conservation and use of public waters is a scientific matter and the necessary ecological knowledge should be obtained by scientists. Thousands of interested sportsmen and nature lovers in Minnesota are earnestly requesting that the drainage laws of this state be amended so as to provide for the scientific survey of all meandered lakes and marshes. The writer does not presume to suggest that this work be conducted by any one state department or institution but rather that the task be delegated to a commission composed of the Governor, Attorney-General, Commissioner of Drainage and Waters, Game and Fish Commissioner and the State Forester. The commission should be furnished the means to employ trained engineers and field scientists and should be vested with all necessary authority to act as complete guardian over meandered water areas and streams and rivers. All county, judicial and state drainage projects should be halted until a thorough ecological and hydrometric survey can be made of the various drainage basins affected.

The following cardinal principles should be followed in obtaining this survey:

1. Obtain an accurate description of the body of water and locate it definitely on a map drawn to scale.
2. Determine the approximate flow of springs and all sources of supply.
3. Determine the amount and nature of the animal and plant life of the waters and its suitability for the maintenance of a fish fauna under the existing conditions.
4. Determine the pollution of the waters, its extent and the probable effect on fish life.
5. Determine the suitability of shores for recreation grounds, etc.
6. Determine the nature and extent of aquatic vegetation and its relation to the food of fishes and aquatic fowl and fur bearing animals.
7. Determine the character and composition of lake beds and adaptability for agricultural purposes.
8. Study the geographical features of the drainage basin, its relation to the permanence of the water supply, any changes on a continuance of the existing conditions.
9. Study the effect of flood waters in its bearing on the plant, animal and fish life; active erosion and its effects.
10. Ascertain, if possible, past conditions of the waters and whether or not they are susceptible of improvement.
11. Report on contemplated drainage of marshes, lakes, wet prairies, etc., in its relation to a permanency of the present supply and maintenance of the waters.

Vincennes, Indiana, May 24, 1922.

American Fox and Fur Farmer
Utica, N. Y.

Gentlemen:—

Permit me, in acknowledging the receipt of sample copy of your publication, to compliment you not only upon the high class character of material and workmanship therein, but also upon your splendid efforts to promote a young industry which I firmly believe has a great future.

With best wishes for success, I am

Sincerely yours,

WILL L. TRWALT,

Sec. and Treas., American Milk Goat Record Ass'n.

Blue Fox Raising on the Islands of Alaska

By C. E. Zimmerman, Brothers Island, Alaska

Blue fox farming on the islands off the coast of Alaska is assuming large proportions. In raising foxes on these islands it is not necessary to construct any fences. The foxes are allowed to roam at large. Brothers Islands are composed of two large and twelve small islands, containing approximately 3,000 acres. On one of these islands is the residence of the keeper and manager.

Some of the foxes that roam over the island are exceedingly tame and there are a dozen or so that stay around the house; in fact, will come in the house if they are allowed. They are always on the watch out for scraps of food. They become very tame and put their feet in our laps and eat out of our hands.

During the Winter months we feed them smoked fish. About the middle of April we commence to give them a feed of mush. This mush is made by using bran, rolled oats or rice, and is cooked with fish. They also like cooked vegetables such as carrots and turnips and will sometimes eat raw vegetables. Blue foxes will often eat vegetables while they are still growing in the ground by gnawing out the centers and leaving just a shell. The tame fox mothers are given bread and milk and they seem to like that the best.

We have been very fortunate in never having any sickness among our foxes. Have never had to give any medicine, nor have never seen any signs of worms. It seems they resort to Nature in taking care of their ailments by eating certain roots, vegetables and plants. It can be seen where they dig up little roots all over the island, and this is more noticeable in the Spring than at any other time.

Their mating is about the same time as silvers, perhaps a little later, and the gestation period is from 55 to 56 days. It is very interesting to watch them, especially after the pups are large enough to be able to eat. The male stays around and helps look after the little ones; in fact, he does most of the rustling for food and carries it to the den. If either the male or female hears or sees anything strange they give a danger signal and immediately there are no pups in sight. In 1921 we had a one-year-old female who was the mother of 12 pups. She is one of our tame ones. We are looking forward to the coming of Mr. F. G. Ashbrook to Alaska this Summer. We are sure Mr. Ashbrook's visit will be a great benefit to our industry.

NATIONAL ASSOCIATION NOTES

One of the members from Greenville, Michigan, who, early this year, purchased a pair of foxes from a nearby ranch paid \$2,500.00. He was given the choice of pen 37 or 36, finally decided to take pen 37, but just as he was leaving the ranch he changed his mind and said he wanted to change the number to 36. This was done and a few weeks ago he discovered that pen 37 had no pups while pen 36 had a litter of four. Shortly after these were bought he sold one pair of pups for \$2,500 cash, so he now has his original pair paid for and two pairs of foxes to the good, in the course of only a few months. Needless to say he is a very great booster and is very enthusiastic about the pups. There is nothing like a satisfied customer when it comes to advertising and boosting the business. Every breeder should make it a point to see that the foxes he sells are delivered to a competent caretaker, who will very likely be successful in raising foxes, and, if necessary, he should do more than his contract calls for to make every customer a successful one.



Ermine and Black Fox make this evening wrap a thing of beauty and a joy to any woman

Shown by H. Berger & Co., New York, at the New York Fur Fashion Show on April 26th

(Courtesy of "Fur Trade Review")

Caretakers' Department

Conducted by W. H. FITZGERALD

TECHNIC OF TREATING ADULT FOXES WITH CARBON TETRACHLORIDE

It was shown in the May issue that treating young fox pups with carbon tetrachloride was easier than treating adult foxes. This is due to the fact that older foxes put up a struggle, so that extra measures must be adopted to hold their mouth open and prevent their struggling.

Mr. Hall states that in treating dogs he simply takes a capsule between his thumb and forefinger and places it far down the throat. Of course, we cannot do this with foxes. If we did the rancher would probably be minus two fingers. It takes one man and an assistant to dose an adult fox. To hold the fox's mouth open a speculum must be used, preferably made of wood. A steel speculum is objectionable as the fox in biting is likely to splinter his teeth. The wooden type of speculum, usually used by ranchers, is a round stick of wood two inches in diameter, with a one inch hole bored through it. This speculum has a tendency to roll and slip and is therefore unreliable for treating foxes with carbon tetrachloride. An improved wooden type of speculum has been used successfully by the writer, and is now manufactured by "The Fox and Fur Farmers Supply Company." This is illustrated in Fig. 1. It is simply a triangular piece of hard wood, shaped to fit the fox's mouth, which keeps it from rolling around, while the side pieces keep it from slipping back and forth. The opening is wide enough to permit easy access into the mouth with a balling gun.

If fox tongs are used, the wooden type are the best. If tongs are of steel, foxes in biting sometimes injure their mouth and teeth.



Fig. 1—Wooden Speculum. Made of hard wood.

The balling gun used on adult foxes is different in construction than the one described in the May issue for fox puppies, but the principle is the same. This gun is illustrated in Fig. 2 and is made in two sizes, one for adults, No. 1, and a size smaller, No. 2, which is for pups two to eight months old.

The gun is not made of all rubber as it would have a tendency to double. The greater part, or butt of it is made of wood, while three inches of the tip is soft rubber tubing, with a bore which is large enough to hold a gelatine capsule. Three inches of the rubber tube projects beyond the wood. The bore of this rubber tubing for an adult gun should be $\frac{3}{8}$ of an inch in diameter. This tube is just large enough to hold a 00 capsule. This size of a capsule holds one-half a dose for an adult fox. Therefore two capsules may be placed in the gun at once, or the fox may be treated twice with one capsule. The plunger,

The advantage of a rubber tube tip on the balling gun is that it can be inserted past the larynx in a fox's throat without any harm. With a pliable plunger the capsule is ejected into the esophagus without danger. There is no danger of inserting

the tube down the windpipe as the diameter of the rubber tube is one-half inch or more, which is much larger than the opening of the windpipe.

The fox is held by an assistant, one hand holding the animal by means of a pair of tongs and the other hand holding its neck and tail. The fox is laid on its back on the ground or table. The operator quickly presents the wood speculum to the fox. The animal will take hold of it with his mouth in the right place and will keep hanging on. The speculum is kept in place by pushing it toward the back of the neck, at the same time pressing the snout toward the ground, so that the head, nose and body will be in as straight a line as possible. With the head in a straight line with the body the tube has little curving to do and enters the esophagus easily.

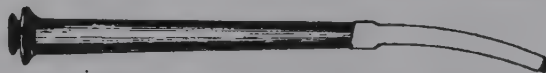


Fig. 2—Balling Gun for administering Carbon Tetrachloride to foxes.

The gun is prepared for the operation by withdrawing the plunger about an inch, which is enough to place the capsule in position in the tip of the rubber tube. The gun is inserted through the speculum down the fox's throat, the operator pointing it slightly toward the back of the throat. By maintaining a slight pressure on the gun, the fox will help the tube go down by attempting to swallow it. When the wooden part reaches the larynx the gun is discharged by pushing down the plunger with the forefinger. The gun is then withdrawn and the operation is completed.

No cathartic is necessary, as all the round worms and hook worms are killed immediately and pass out in the normal feces.

Dr. A. Allen, of the Canadian Fox Research Station, has shown in his recent experiments that carbon tetrachloride is 100 per cent. efficient in treating foxes for hook worms. There is no reason, therefore, why any fox ranch should have hook worms in their foxes. All danger by suffocation is entirely removed if the above method is used.

Fox pups, between the ages of two to eight months old, may be treated in a similar manner. The speculum in this case is a smaller size and is also manufactured by the same firm. The gun is also a medium sized gun, the tube having a bore of 5-16 of an inch. This size is just sufficient to hold a 1 and 0 capsule, which hold .5 and .6 cc of carbon tetrachloride, respectively, which is the correct dose of a pup from 50 to 90 days old.

The rancher may figure out the size dose for his pups by weighing them. It has been found that the efficient dose for foxes is .3 cc for every $2\frac{1}{4}$ pounds per weight of fox. If a fox weighs $4\frac{1}{2}$ pounds, then the required dose is .6 cc, and this will require a No. 0 capsule.

Carbon tetrachloride is a colorless liquid and is sold in bottles or cans by various firms handling chemicals. It evaporates readily.

Adult animals, before they are treated, should be starved twenty-four hours, while pups are fasted about twelve hours.

BIG HEAD IN FOXES

When fox pups reach the age of three to three and one-half months the permanent teeth of the animal begin to push out the milk teeth. It is at this age that sometimes a fox may develop the disease called "big head" or "septicemia." Septicemia is another word for blood poisoning and from those who have made a study of the subject, the way the disease starts is in this manner:

When the permanent teeth begin to push out the milk teeth, there sometimes appears a space between the two sets of teeth. In this space a certain germ, called *Streptococci* finds lodgement and begins to grow and multiply. Now this germ may come from various sources—from tainted meat or decaying food. The space usually attacked is under the crown of the premolar tooth, usually the upper; in fact, this same germ is the same that causes tonsilitis in humans. The mucus membrane of the fox's mouth becomes very soft and swells. A thin watery fluid comes from the swellings if punctured. This is caused by the lymphatic glands being dammed up.

This disease is said to be contagious and one can readily see this if he reads Mr. Jones' article on microorganisms. If a fox has "big head" there are probably millions of germs being discharged from his mouth, and if there are two or more foxes in the same pen it is very easy for the germs to find access into another fox's mouth and the germs may even be carried by the shoes of the keeper into another pen.

As the disease can only be transmitted by means of the germ, the rancher has the means to prevent its spread to other foxes. When a fox becomes sick with "big head" he should be immediately removed to a hospital pen. All the dishes should be thoroughly disinfected with a carbolic acid solution or other disinfectant, and the pens and dens thoroughly sterilized with fire or a strong solution of disinfectant. The keeper should not go into this pen again for some time, until all danger of disease is passed. Care should be taken that all food is handled in a clean and sanitary way, so that there is no possible chance of the germs being carried to healthy foxes.

Treatment—It is always best to call a veterinarian in case this disease affects any of the animals. The affected tooth should be pulled to permit better drainage and the cavity may be thoroughly disinfected with an antiseptic solution by means of a syringe.

DISARMING SKUNKS

If a skunk breeder wishes to remove the scent glands from his young skunks, he should do it as soon as possible after they reach the age of four or five weeks. The operation is simple and can be done by any amateur.

The operator should dress in old clothes or overalls if he is an amateur. The danger of getting scented is less if the skunks are young. For skunks more than two months old, goggles should be worn as a precaution. A good operating table consists of a plank laid across two kegs or horses.

The instruments necessary for this operation are as follows:

- 1 dissecting scalpel
- 1 dissecting tenaculum
- 1 pair dissecting forceps
- 1 pair automatic clamping forceps
- 2 pairs goggles
- Absorbent cotton

The instruments should be sterilized by boiling, then placed in a tray of five per cent. solution of carbolic acid. They should be kept in this solution whenever not in use during the operation.

The operator sits astride the plank with a large gunny sack spread before him. The assistant brings the skunk, carrying it by the tail. He then grasps the skunk behind the neck with his other hand and holding the body and tail in a straight line he lays the skunk downward on the gunny sack, with the head of the animal toward the operator. The operator then wraps the sack tightly around the skunk to prevent it from biting.

The scent sacks are situated on each side of the vent (Fig. 3). They may be easily located by the operator as they will feel like a hard marble beneath the skin.

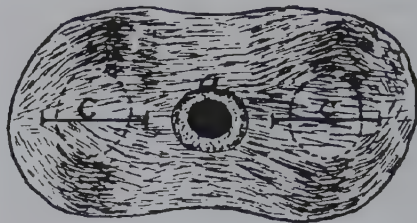


Fig. 3—Diagram showing position of scent sacks of skunk—*a.* anus and sphincter muscle; *c.* lines of incision to expose sacs and ducts.

The operator, with his thumb and forefinger, takes hold of the scent gland through the skin and by squeezing draws the skin firmly over it.

The place where the incision is to be made is disinfected with a piece of absorbent cotton dipped in five per cent. solution of carbolic acid.

Now around the vent is located the muscle called the sphincter muscle. To prevent injuring this muscle it is well to start the incision $\frac{3}{8}$ of an inch to one side of the vent and cut away from it. See Fig. 3 and 4. The incision should be made $\frac{1}{2}$ of an inch long, directly over the scent sack.

The scent sacks are enveloped in a muscular bag. It is necessary to cut through these muscles to reach the scent sack.

The cut is gradually deepened by short strokes through these muscles until a small white bead appears (Fig. 4). This is the scent sack. The gland is easily distinguished from the muscle as it is entirely white.

Care should be taken not to cut through the sack. The operator can keep cutting away from on each side of the bead and by squeezing his fingers the sack will come out of its own accord. When the sack is half way out it will then appear about the size of a pea. The cutting may then be stopped.

By means of the extracting forceps the sack is gently lifted out, first gently pulling on one side and then on the other. When the sack is entirely out and free from the muscles the discharge duct between the sack and the vent can easily be seen.

The duct is now clamped with the automatic clamping forceps as near to the gland as possible.



Fig. 4—Cross section through scent glands—*a.* anus; *r.* rectum; *m.* sphincter muscle; *s.* scent sacs; *e.* muscle about scent sacs; *d.* depth of incision (shaded); *f.* clamping forceps in place; *c.* place where duct is cut.

Before cutting, the operator should see that no part of the sphincter muscle, or discharged pappilla, are attached to the duct where he is to cut. The duct is now cut with the scalpel close to the automatic clamping forceps as shown in Fig. 4 at C. The sack is now lifted out with the clamping forceps and the cut is thoroughly sterilized with carbolic acid solution.

In the same manner the second scent sack is then removed. No sewing up or further attention is needed after the wounds are thoroughly disinfected with the carbolic acid solution. All skunks should be examined, however, daily to see that no infection has taken place, and to prevent this the wounds may be disinfected frequently.

SEPARATION OF FOXES

The young fox pups are now approaching that age when they require more room. The parents also some times will be getting anxious to get away from their young ones. At this time of the year there is also danger of over-crowding. Therefore, it is a wise precaution to separate young foxes into new pens by themselves. The litter of one family may all be put into one large pen.

Young foxes should be dusted frequently through the Summer months with insect powder, in order that they may not be hindered in their development by these parasites.

Milk and cereals should make up the bulk of rations of young foxes. A young fox should not receive more than four or five ounces of raw meat to a ration.

QUESTIONS AND ANSWERS

A. N.—Q. Do medium silver parents produce all silver foxes, or how does the silver run in the offspring? A. This all depends on the ancestry of the parents. The quantity of the silver character, however, is not fixed. Medium silvers may produce a litter of four that will run something like this: One pure black, one pale silver and two medium silvers. The average of the whole litter nearly always runs the average of what the parents are, but the silver or black may be concentrated in one or more foxes.

C. J.—Q. How soon can you place the male fox back in with the female after the pups are weaned? A. It is better to leave the female separate for awhile, until her strength and health are built up. The best time is generally in the Fall of the year.

WANTED

Every Fox Rancher and Fur Farmer in the United States to subscribe to the American Fox and Fur Farmer

Fox and Fur Farmers Supply Co., of Utica, N. Y. announce their opening

Manufacturers and Dealers in Equipment for Fox and Fur Farms

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From the Ranches

This Department Is Organized for the Purpose of Publishing Various Notes, News and Interesting Letters Received from the Various Ranches Throughout the United States and Canada Telling of Their Progress and Development. If You have Any News That Would be of Interest to Other Ranchers, We Would be Glad to have You Write This Department..

Adirondack Mt. Silver Black Fox Co.

Mr. Perry A. Cole of The Adirondack Mt. Silver Black Fox Company, reports that his ranch has had wonderful success this Spring. He has now about 106 pups on the ranch. Mr. Cole is adopting many modern features and up-to-date methods. He is also building an addition of fifteen pens of a semi-circular type. These pens have a special feature, which is quite a new idea. We hope to publish plans and details of this new feature in the July number. Mr. Cole is very enthusiastic about the fox industry and he believes that to help boost the industry he must help the other fellow.

Dearborn Fur Farm

The Dearborn Fur Farm are building many new improvements on the ranch. One of these is hospital pens. The floor of this hospital will be smooth concrete and will be so constructed that they can be easily flushed and kept clean. There will be a concrete ridge between each pen to prevent contaminated material going from one pen to another. In the hospital will also be a laboratory containing a complete outfit for studying parasites. Dr. Dearborn reports that the ranch has had better success this year in raising pups than they had last year. The total increase is over 160 per cent.

Marsh, Cannon, Silver Black Fox Co.

The parents of the nine pups shown in the photograph on this page have made a wonderful record. When this pair was delivered to Mr. Hume's ranch they were five years old and had 25 pups, raising 24 of them to maturity. The next year they had eight and raised seven. This year they raised the nine as shown in the above photograph.

This makes a total of 42 pups that they have had in seven years and out of these they have raised 40. This is some record and it is a hard one to beat.



This is a Litter of Nine Pups raised by George Hume, Caretaker of The Marsh & Cannon Silver Fox Co., Muskegon, Michigan

SILVER FOX FARM AT BIRCH LAKE PLANNED TO BE WORLD'S LARGEST

Veteran Furriers Form New Company at Ideal Point; Special Effort Will Be Made to Have Tourists Visit Place

From St. Paul Pioneer

St. Paul motorists will have a new attraction for cool summer evening journeys when the *Mississippi Valley Silver Fox Company* opens what is intended to be the largest silver fox farm in the world at Birch Lake, one mile from White Bear, the latter part of June.

The old Freeman summer home, including eighteen acres of shaded land, has been purchased by the company, which is headed by Arthur Schleicher, veteran fox farmer; John Schmauss, president of the Rest Island Silver Fox Company of Lake City, Minn., and Harry La Due, assistant fish and game commissioner of Minnesota.

Workmen will be engaged in erecting pens and remodeling buildings on the property within the next ten days.

It is planned to make the place an attraction to Minnesota's summer tourists by widespread advertising. All highways in the vicinity of the Twin Cities will be posted with guide signs giving directions to the farm, and large electric signs will be erected on the White Bear road and in the village of White Bear for night traffic.

Will Raise Other Animals

In addition to the foxes there will be numerous other fur-bearing animals. Deer, raccoons, beaver and wild ducks, geese and pheasants will be kept. A large picnic grounds will provide luncheon space for parties intending to make a day of it.

In the Freeman property the men heading the enterprise believe they have found the ideal location for such an industry. It is well drained, situated on high property covered with trees that forms a peninsula in Birch lake. It is the kind of a place suited to rearing of healthy animals with heavy fur-bearing pelts, they believe.

One hundred pairs of pedigreed silver foxes will be stocked on the ranch immediately and it is intended to build it into the largest farm of its kind in the world within two years.

All of the men are experienced in this type of animal husbandry. Mr. Schleicher and Mr. Schmauss being proprietors of three other fox farms, one at Lake City, one at Milleville and the other at Red Wing. Their stock is accounted some of the best in North America and has taken many prizes at shows in the past five years.

Started Ten Years Ago

Ten years ago Mr. Schleicher began his experiments in fox farming with a pair of red foxes given him by a friend. Shortly after he acquired a pure-bred strain of silver animals and in the past ten years he has built up a large fortune.

As a consequence, animals of his enterprises have acquired a worldwide reputation among fur buyers. Their pelts are said to be some of the heaviest and finest marketable.

At the present time 300 pelts, the crop of last year's season at the Rest Island farms, are awaiting sale in England. Between \$300 and \$800 is expected for each pelt. Breed animals of Mr. Schleicher's farms have sold as high as \$3,000 a pair, which is said to be a record.

Mr. La Due will be manager of the new Birch Lake farm. The estimated cost of opening the new place is \$250,000.

Associations

AMERICAN FOX BREEDERS ASSOCIATION

By GEORGE BRACKETT, Secretary

At this season of the year the average rancher and breeder is busy not only with his pups but with preparations for vacations, closing of schools, planting and the various occupations which make up to change the Winter Schedule for a Summer one. Your Mr. Editor and your Mr. Secretary must keep up about the same schedule the year 'round, passing on such new ideas and policies that are bound to arise from time to time and which generally blossom forth in the fall of the year. Of course there are some ranchers who are on the job all of the time, keep in touch with all matters pertaining to the business and are thoroughly posted on general fox affairs.

This is the time of year also, when the sharp dealer and shopper is around looking for merchandise held in weak hands. This fact applies very strongly to the pelt end of the industry and many a high grade fox pelt is sold at a sacrifice price. Once this kind of a transaction takes place, you may be quite sure the reputation is going to stick and securing a fair price for your pelts after you have once sold them at sacrifice prices, is uphill work. Selling below established market values, hurts the industry down the entire line. When it occurs that a large number of holdings are sold at prices of about one-half what they are worth, the entire market becomes demoralized.

Also at this season of the year comes the period when the rancher wishes that last season he had done some of the things pertaining to such little matters as sanitation, worming the old foxes, arrangement of dog houses or perhaps changing the wire on the dividing fences of certain pens.

Make a written note, not a mental note, of all of these details which should be attended to and do not destroy the note until you have accomplished all that the note calls for. If you cannot find time or do not have the inclination to attend to the small but all important "little things," you are on the road to failure as a successful fox breeder as this advice applies to the fox industry to a much greater extent than to any other business we know about.

You must have already learned some new wrinkle about foxes that is worth while and to those who have made discoveries, you should write to the magazines and to your association of which you are a member, so that the other breeders may be benefited. By doing this your standing in the industry is enhanced greatly, not only as being a breeder of experience but as a breeder whose methods are to be admired.

Applications for Registrations are being received from Canada which naturally results in a mutual good feeling and a more clear understanding between ranchers in both countries. It is quite proper and almost necessary, to have good natured and fair rivalry in the industry, but business must be conducted along legitimate lines to succeed in the long run.

This office is continually receiving letters from different sections of the United States, which read about as follows: "I am a successful farmer. I am greatly interested in the Silver Fox business. I have money enough to buy a few pairs of the very best strains of foxes. I am a thoroughly educated farmer, know well enough how to keep horses and cows, also dogs, but I have never seen a living Black Silver fox. There are many advertisements and of course everybody claims to have the best ones, even if you only pay \$5 a month. How can I start a fox ranch? Can you give me some advice as to which are the best strains and where to buy them?"

Letters, reading along these same lines are coming in so frequently that I believe something should be printed in the bulletin regarding our form of answers and the policy taken by the American Association in such cases.

At the annual meeting the Secretary brought the question before the members as to what action he should take on letters which he received containing an inquiry as to where live stock could be purchased.

It was suggested that each member be sent the name of the party writing to the association as aforesaid. This was objected to by some of the members, owing to the fact that some ranchers who had printed glowing accounts of foxes with winnings at different shows, etc., would have the advantage over the small breeder, who really had good foxes but did not have the wherewithal to advertise so extensively.

It was finally voted to send in the reply to the party writing for information as to where breeding stock could be bought, the names of the members who would likely have foxes for sale, leaving it to the party who made the inquiry, to make his own selection.

Now the questions which are received in these letters are so varied that each letter requires a different form of reply but the general text of most of the replies are to this effect: there are many strains of foxes each equally as valuable as the other, there are several of the older strains which have been bred together which have resulted in a new strain of foxes producing pelts which have brought equally high prices and have won as many prizes at the fox shows. It must be acknowledged, without fear of contradiction, that the value of a fox is in its pelt or its ability to reproduce foxes having a grade of pelt which is worth a high price.

We can therefore advise you to purchase such foxes as you can satisfy yourself, have a record behind them for PELT VALUE.

Do not fail to secure a copy of "Questions to Dealers", which is free for the asking and was printed by the American Fox Breeders Association for the purpose of assisting the party who is about to purchase foxes.

We can recommend buying foxes from the members of the American Fox Breeders Association, insofar as they are held liable to suspension or disqualification, if they commit any act prejudicial to the interests and good character of the Association. If you will write to some of the members asking as to their methods as used by them when starting a fox ranch, you will undoubtedly form ideas of your own as to the best method to use under such conditions as exist with your own environment. Should you wish advice on any particular question or questions please feel at liberty to write this office at any time and we will do the best we can to help you out.

From the Fur Age Weekly, May 15th issue, we note the following: John C. Stott, manager of the Furriers Security Alliance, stated that last week was the best in the way of accomplishment that the Alliance has yet known. "Several members of what is known to be the meanest band of organized crooks that have been operating on the fur industry the past two years, have this week received sentences ranging from five years up." "This gang, commonly called 'the Kick in Gang' has been attacking stores in the wholesale district. We are after them and we also have under surveillance those whom we believe to be leaders of other organized bands of crooks. It is particularly gratifying and amusing," said Mr. Stott, "to note that the opposition to the Alliance comes from only one ele-

ment in the fur industry and it is this element we believe who is interested in actual disposition of stolen goods.

Chicago furriers are planning a fur style show to be held from July 24th to August 13th, on the most stupendous scale they have ever attempted before and the enthusiasm with which they have entered into it, is shown by the fact that on the first night \$25,000 was subscribed to launch it. The Fur Fashion Show will be run in conjunction with a musical revue which will have a cast of more than fifty girls and will cost close to \$40,000.

At a meeting of the Board of Directors held at the Hotel Matinique, New York City, the Associated Fur Manufacturers, Inc., will make a final decision on the proposed plan to stage a fur fashion show in May, 1923.

At the Montreal Fur Sale Silver foxes were reported as sold at a decline of ten per cent.

The Mukden office of a prominent fur dealers has wired headquarters that a large shipment of furs will come forward. The war in China has been interfering with traffic in and around Mukden and it was felt that shipments would be delayed indefinitely. It is unofficially reported that a large shipment of unwashed linen was dropped on the battlefield by planes and a truce was at once declared while the contending armies bid for the work.

Co-operative Selling Association

We are publishing below a circular letter received from George Brackett regarding the organization of a Silver Fox Breeders Marketing Association. We realize, as does Mr. Brackett that the industry needs such an agency. We wrote Mr. Brackett, stating that such an association can be made a success if it has the universal support of all present associations and all fox ranchers in the United States. This really ought to be controlled by an United States Fox Breeders Association and not by any group or class of fox breeders. We are, however, glad to help Mr. Brackett in canvassing the opinion of the different fox ranchers in regard to this proposal. On another page of this magazine we are printing a coupon vote, to be filled out by the different ranchers and mailed to Mr. Brackett. It is sincerely hoped that all ranchers will fill out this coupon and return to Mr. Brackett.

Mr. Brackett's Letter

Dear Sir:—

There has come the realization that unless there is immediate action taken in regard to the Classification, Grading and Marketing of the pelts of the Silver and Black fox, this industry as a profitable investment is fast going.

Unless the pelt will command a good price, the live fox as a breeding proposition is not going to be a good business to enter.

For want of classification and proper methods of marketing, prices on Silver and Black fox pelts have been continually falling.

Again, the rancher, needing money and having little or no experience or knowledge of fur value, puts his pelts on the market, first in one dealer's hands and then another; then accepts what is offered him.

This method of selling not only helps to make prices still lower but creates the impression among dealers that pelts are available in larger numbers than they really are, while the fact remains that there is only a small percentage of Grade A Silver and Black fox pelts in existence anywhere in the world.

There should be a Co-operative Selling Association formed to market all Silver and Black fox pelts, working along the lines of the Fruit Growers associations, it would be of immense value to all Fox Ranchers.

Do not think that just because you may not have any pelts

for sale, this matter of co-operative marketing of pelts does not interest you.

The value of Silver Black foxes is in their pelts and if the pelts do not command a good price, of what value are the breeding stock?

This matter of co-operation is of vital importance to you even if you only sell breeders, as to the rancher who raises for the pelt market only.

Every rancher whether he is going to have pelts or only breeders to sell should, if they would protect their own interests, consider the matter at hand, with deep thought, and come to a decision to his own satisfaction.

To illustrate how prices have been falling, we will quote from an article in the Daily News Record of May 12, 1922, on the Montreal Sale held May, 1922.

"The highest price paid was \$380 by B. Albert, a Montreal manufacturer, for a private party." "Silvers took up the greater part of the afternoon, but the high price of \$380 was not again approached."

Under a co-operative plan of shipping your pelts and notifying the Association or a State Agent, the number of pelts to be expected, I fully believe the owners would receive much better prices for their pelts and also a substantial dividend returned to shippers by their manager.

It means that every rancher must ship his pelts to the Association in order that the percentages of the different grades can be ascertained in order to base values and prices.

The manager must be a man of year's experience in handling Silver and Black fox pelts and be acquainted and in touch with all the markets of the world and must be a man of strict business integrity.

A Silver Fox Breeders Fur Sales Co-operative Association should propose to act as a selling agent for the Ranchers and to standardize the Silver and Black fox pelt industry on a basis of a purely commercial product.

Practically every raw fur price list issued by all Fur Dealers, has quoted prices on Silver and Black fox pelts "AS TO BEAUTY," this in reality means nothing.

One dealer may call a Silver Black pelt a "BEAUTY" which another dealer would not.

There is a correct way and method of grading all Silver and Black fox pelts.

The pelts can be graded so that it will not be confusing for a dealer to understand just what the Sales Association is offering when a certain grade of pelt is put on the market.

The fur dealers have heretofore tried and in most cases have succeeded in buying Grade A pelts at Grade B or C prices.

The stamp of a Silver Fox Breeders Fur Sales Co-operative Association on a pelt will commend itself to the buyer and tend to eliminate trickery and false values being placed on Silver and Black fox pelts.

NOTE: The following is an outline of the method which I originated and have been using for several years in the selling of Silver and Black fox pelts and which can be applied to selling of pelts by a Silver Fox Breeders Fur Sales Co-operative Association.

SHIPMENTS. The owner sends a Silver Black Fox pelt addressed to the head office of the Association or to a state agent to be forwarded. The pelt is immediately given a number; this number is entered on the receiving book together with the owner's name and address. A strong linen tag is sealed and attached to the pelt; this tag has on it the same number as given to it in the receiving book. This same number remains on the pelt until sold, unless, with the consent of the owner, for some good reason, it is changed and given another number.

APPRAISING. The pelt is first taken and thoroughly cleaned (not dressed or tanned). It is then taken in hand by the Board of Appraisers and is classified and valued by them. By

classifying is meant, that a full description of the pelt is entered on a special form of card bearing the same number as the pelt. By referring to this card the entire description of the pelt from the measurement, color, lustre, brush, tip, to price and owner's name may be seen at a glance. The pelt is then ready to be placed on the market.

ADVANCES AND VALUATION. After the pelt is valued for selling purposes by the manager, the Class, Grade and Selling Price is mailed to the owner. If the owner does not agree to the selling price as placed on the pelt by the Board, he may state the lowest limit of price at which the pelt may be sold. If the owner of the pelt wishes for a cash advance, he may, upon applying to the Association in writing, and upon approval by the Financial Board, receive a sum of money up to and equal to 50 per cent. of the valuation as placed on the pelt by the Board of Appraisers. This amount of money advanced, together with interest on same at the rate of 6 per cent. per annum, is charged against the pelt.

TITLE. The title to the pelt always remains in the possession of the owner subject to any advances or charges against it. The pelt shall be delivered to the owner's order upon payment of all charges standing against the pelt on the books of the Association.

UNSOLD PELTS. Should any pelts remain unsold at the end of sixteen months from the date of receipt, the owner shall be notified by mail to the effect, that the pelt has remained unsold for sixteen months and, should the Financial Board decide to do so, it shall have the right to sell the pelt (on the open market only) for the best price obtainable, notwithstanding any previous agreement as to a limit of price.

CHARGES. The commission for selling shall be 10 per cent. and the minimum charge on any pelt shall be \$2.50.

All pelts are to be kept fully insured for full value and handled in the most correct and careful manner. The association should lease room from a Bonded Cold Storage Warehouse, where pelts may be placed when occasion requires. It can readily be seen that following the aforesaid system of handling and marketing Silver Black fox pelts, that every interest of the owner is safeguarded and he is in a much more advantageous position for getting the true value for his pelt than if he should depend on chance in selling.

If every person interested in the Silver Black Fox industry will agree to sell all of their fox pelts through the co-operative association acting as their agent, and subscribe for shares in a Silver Fox Breeders' Fur Sales Co-operative Association they will thereby guarantee themselves not only of securing the true worth of their fox pelts but of stabilizing the Silver Black fox industry as a whole.

Feeling that some step in this matter must be taken by someone in a position to correctly summarize and estimate the possibility of getting the ranches to co-operate, I would ask every individual interested in the subject to immediately fill out and return to me the attached coupon. Every person filling out the coupon will be notified of the result of this census.

The following figures are based on an estimate of receiving one thousand pelts of an average value of \$100.00:

EXPENSES

5,000 Shares, \$10.00 each, \$50,000. Interest 6% .	\$ 3,000.00
Rent	900.00
Furniture and Fixtures	200.00
Incidentals	100.00
Storage (cold)	200.00
Bookkeeper and Stenographer	936.00
General Manager	2,600.00
Advertising	464.00
	<hr/>
	\$ 8,400.00

INCOME

Advances to shippers on \$40,000.00 at 6%	\$ 2,400.00
\$100,000.00 of Business at 10%	10,000.00
Cleaning and Preparing 1,000 Pelts	1,000.00
	<hr/>
	\$ 13,400.00

RECAPITULATION

Income	\$ 13,400.00
Expenses	8,400.00
	<hr/>
Balance (equal to 5% on the dollar dividend to shippers)	\$ 5,000.00

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COUPON—DETATCH AND SEND AT ONCE

For Information Only

1. Do you breed foxes?.....
 2. Will you send all of your Silver and Black Fox pelts to the Co-operative Fox Fur Sales Agency if formed?.....
 3. Would you take shares in a Co-operative Silver Fox Fur Sales Association if formed to your satisfaction?.....
- Would you wish an advance on your Fox pelts?.....
- Signed
- Address

Mail this coupon to George Brackett, 227 Congress St.,
Boston, Mass.

NOTES OF THE NATIONAL SILVER FOX BREEDERS ASSOCIATION

By J. C. SMITH, Secretary

Those who were fortunate enough to hear Dr. Allen's lecture at the April meeting of the National Association will all agree that the information they received was well worth coming a long ways to hear. At our recent meeting, June 7, we had the pleasure of listening to another very prominent man who is connected with the Canadian Department of Agriculture and who undoubtedly is one of the best posted individuals on the fox industry in this country or in Canada.

Dr. W. G. Church, who was the principal speaker at our last meeting, came to Muskegon from Summerside at the request of the Association to give the members all the information he had that might be of value to them in building up the industry in this country. Dr. Church's lecture covered nearly every phase of the fox industry and after he had finished with his remarks the members were given the opportunity to ask questions of the Doctor. This kept him busy for about an hour and a half and a number of very valuable suggestions were brought out.

One point brought out by the Doctor which was rather surprising to a number of the members was that regarding the relative value of the brush of a Silver Fox. When asked what the relative value of a good brush was to the rest of the fox the Doctor said that in his opinion he would consider a good brush, with a pronounced white tip, as worth fifty per cent. of the total value from the standpoint of breeding purposes. He went on to explain, however, that in the fur trade the value placed upon the brush is somewhat less than that, but he went on to say that in the breeding of foxes the brush is the first part of the pelt to show any indications of a Sampson fox. The brush is the first part of the pelt to become thinly furred and to go off color, and if the same methods of breeding were to be continued, the rest of the body would undoubtedly develop the same characteristics. The Doctor put it up to the members and asked if there were any experienced fox breeders present at the meeting who would not be willing to pay many times as much money for a large well-furred brush with a good white tip than they would for another fox equally well furred on all parts of the body except the brush. The Doctor said that naturally the foxes with poor brushes might be disposed of to the uninitiated but he doubted if any real progressive fox breeders would want to buy a fox with a poorly furred brush for his own particular use.

The members felt that certainly the Doctor should know what he was talking about, and many of them began to think quite seriously on the qualifications for brush as laid down in the "so-called" Universal Standard proposed at Montreal last September.

It seems that this question would be one worth considering very seriously by everyone in the business. One of the members asked the Doctor if he ever saw a Silver Fox with a well furred brush and a poorly furred body. The Doctor said "no" and that no one else ever did, but he had seen lots of them just the reverse.

A number of other questions regarding feeding, breeding, housing, construction of pens and better management of a fox ranch were discussed with a result that a number of the older and more experienced breeders will undoubtedly change some of their methods. The question of shade came up. The Doctor explained that too much shade was worse than no shade at all as it was very necessary for the sun to be allowed to reach the pens to keep them sanitary. He also stated that pens built in the open might be furnished with artificial shade with just as good results as would be obtained with natural shade. He also mentioned that he had had very little experience with the

underground houses, but that in his opinion the underground house would be less satisfactory than the overground house from the standpoint of sanitation and ventilation.

The By-Law Committee, at this meeting, submitted its recommendation for amendments to the present by-laws, and after some discussion it was decided to have printed copies made of the by-laws and submitted to every member for further study and consideration with a request that suggestions and criticisms be forwarded to the office, so that the by-laws might either be passed upon or altered at the next regular meeting in July.

In discussing the tariff question it seemed to be the general opinion that some means could be provided whereby foxes conforming to a very high standard might be admitted free of duty, and a prohibitive duty placed upon those that do not conform to such a standard, that it would be much better for the industry at large. This is what the Association tried to get when its representatives were sent to Washington a year ago, but the suggestion was discouraged by the officials at Washington, who explained that it would not be practical. We still believe that if enough pressure were brought to bear upon Congress we still might bring about the adoption of such a plan, but until it can be accomplished the present proposed tariff is much better than that in force at the present time.

Another question that is being given considerable attention by this Association is the requirements for registration. It is believed that all foxes to be registered should conform to a certain standard rather than merely showing many generations of pure breeding. The fact is, at the present time, many of the foxes that have a number of generations of pure breeding back of them are very inferior, in fact many of their pelts are less valuable than those of cross or patch foxes. We believe that within a short time foxes will be inspected for the ordinary registration as well as for the advanced registration.

Reports are constantly coming to this office that various dealers are selling foxes for breeding purposes at prices lower than those paid for good pelts. Certainly a fox fit to be sold for breeding purposes should command a much higher price than its actual pelt value. It is up to this Association to take some steps to put the unscrupulous dealers out of business or to force them to supply a quality of animal that is fit for foundation stock for breeding purposes. We believe that it would be possible for this Association to have all foxes sold by its members for breeding purposes passed upon by the Association before permitting them to be sold, and require all others to either be pelted or left in the ranch. We believe that with the co-operation of the breeders, who have the interest of the industry at heart, it will be possible to work out some satisfactory plan such as suggested above. Such a plan might appear to be rather severe on some of the breeders who were unfortunate enough to have been the victims of some dishonest dealer, but certainly every broadminded fox man can see the advantages to be gained by permitting nothing to be sold for breeding purposes except the very highest type of silver fox. It is doubtful if one-fifth of the silver foxes in captivity to-day are fit to be sold for breeding purposes. What a blessing it would be for the future of the industry if all the inferior foxes and those unfit for breeding purposes could be knocked in the head and pelted. This Association would like to receive expressions of opinion from anyone in the business regarding this question. If any of you have suggestions that would help bring about a general cleaning up of the industry, we certainly would appreciate having you submit them for consideration. The industry lacks organization. There is too much jealousy and eagerness to get rich quick that keeps the members from working together in harmony for the good of the industry. There is a big market for silver foxes to be developed and it is absolutely unnecessary for this practice of "getting the suckers while they last" which seems to be the slogan of so many dealers now in the business. This industry needs publicity, and the public needs to be edu-

cated. This can be done through co-operation only, the same as it has been done by the California Fruit Growers and other similar organizations that have put their industries on the map to stay and by their practice of supplying quality at a profit rather than quantity only regardless of quality.

It is true we are all more or less new in the business and have a great deal to learn, but now is the time for us to get busy and take steps to keep the industry clean so that it will survive and be of some service to humanity.

The big objects of the National Association are, to protect and promote the interests of those engaged in the breeding of Silver Foxes in captivity. These objects we expect to accomplish:

1. By establishing standards of breeding and by carrying out a system of registration for the benefit of its members.
2. By encouraging the production of better and still better foxes.
3. By procuring legislation favorable to the industry that will insure us of the protection to which we are justly entitled.
4. By determining the best methods of feeding, breeding, housing, mating, preventing and combatting diseases, etc.
5. By maintaining a fair price for breeding stock (which should be of the highest quality).
6. By devising co-operative methods whereby we will obtain the highest possible returns for pelts.
7. By compiling statistics and information for the benefit of the members.
8. By giving the industry publicity and by encouraging square dealing and preventing fraud.

Some of these objects have already been accomplished. Some are being accomplished, and with the support and co-operation of those who are engaged in the Silver Fox industry it will be possible to accomplish all these objects and thereby put the Silver Fox industry on a firm and sound basis and make it one of the best and most profitable businesses in the world.

This Association not only wishes to work for you but it wants to work with you. Its success and the success of the Silver Fox industry depends upon you and the financial and moral support you give it. We all have our own ideas and little differences, but still we are all working for the same end and these petty differences and jealousies must be laid aside as in battle and unite our efforts for the good of the cause. "Get Together."

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Did you ever consider the reason why so many poor fox pelts are going to market? Foxes that are not normal and healthy in every respect cannot produce good pelts. What is a cull? In nine out of ten cases a post mortem examination will show the reason. The animal is not healthy.

Buy my foxes and get real foundation stock that will produce the pelt of excellence. Prices of breeding stock given on request, and my method of raising foxes fully explained to each purchaser.

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The Blue Grass Farm Kennels, of Berry, Ky., Dept. 27 offer for sale Setters and Pointers, Fox and Cat Hounds, Wolf and Deer Hounds, Coon and Opossum Hounds, Varmint and Rabbit Hounds, Bear and Lion Hounds, also Airedale Terriers. All dogs shipped on trial, purchaser alone to judge the quality, satisfaction guaranteed or money refunded. 100 pages, highly illustrative and interesting catalog for ten cents.

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IS GLAD TO ANNOUNCE
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SOMEONE must take the initiative in making it possible for people to travel and spend less money—now that there is less money to spend.

So, hand in hand with Hotel McAlpin which recently announced its reductions, the Martinique—just across the street and under the same management—becomes a leader in lowering hotel tariff.

This is setting an advance styles, as it were, for there has not been an appreciable reduction in the cost of running a large New York hotel.

If, however, the public esteems the spirit in which it is done, as much as the management of the McAlpin and Martinique appreciates its patronage, then indeed, is it worth doing.

At the Martinique the new prices are: \$3.50 up for rooms and bath; \$2.50 for room without bath.

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Broadway, at 32nd St., New York
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AMERICAN GAME PROTECTIVE AND PROPAGATION ASSOCIATION

Two More Lakes Going

The sportsmen of Idaho have been doing their best to prevent the drainage of Frye Lake and Mirror Lake, which are widely known as most excellent wild duck breeding and shooting grounds. From information we have received, these two bodies of water would be excellent areas to be purchased under the Public Shooting Ground-Game Refuge Bill. However, as the attempts to block the drainage of these waters have apparently failed, two more famous waterfowl breeding grounds are going to be drained and the interests of the country as a whole will be sacrificed for the financial gain of a few individuals.

Michigan Imports Reindeer

To-day reindeer are ranched in Alaska as cattle were once ranched in the west. Reindeer meat is for sale at most of the big hotels and restaurants in the country. Scientists predict that before many years reindeer meat will supplant steer beef as an article of diet.

The state of Michigan recently imported sixty reindeer from Roraas, Norway. The vitality and stamina of these animals is most remarkable. They were driven a considerable distance to a narrow gauge railway. Here they were crated, each animal in a crate five feet long, four feet high and twenty-two inches wide. At the time of crating the animals were all dehorned.

They were shunted around and transferred several times on their rail trip to Christiania where they were placed on board the Norwegian-American ship Bergensfjord. In all they were in transit twenty-four days and the shipment arrived in this country without the loss of an animal, all being healthy and in good condition. Several herders and a herding dog were brought over to take care of the animals after they are released on the public domain in northern Michigan.

In their native country the food of the reindeer is a moss which, experts of the United States Bureau of Biological Survey tell us, has a very small food value as compared with our different kinds of hay. Twelve thousand pounds of this moss were shipped along with the deer, most all of which was used on the trip.

Mr. David R. Jones, chief deputy of the Michigan Department of Conservation, who met the animals at New York, was very much disturbed to find that the United States laws would compel him to leave the animals here fifteen days in quarantine before he could continue with them on to Michigan. This necessitated getting them to eat some other kind of food, as a further supply of moss was impossible.

At the suggestion of the government experts, Mr. Jones obtained first red clover hay, then timothy, then prairie hay. The animals were tempted with different grains, but refused to partake of any of the food offered them. The one hay which the experts informed Mr. Jones would be sure to be refused was alfalfa. As the last resort, some baled alfalfa was secured, and much to the relief of everyone the animals pitched into it eagerly.

Is Conservation in New York Slipping?

Last year the New York legislature cut down the number of game protectors from one hundred and thirty-one to ninety, adding the enforcement of the conservation code to the duties of the state constabulary. We have no bone to pick with the state police; the majority of the members of this force whom we have met have been fine, upstanding men, but we do not believe they would ever be a success in enforcing the game laws.

A man to make a good game protector must have a knowledge of outdoor life and woodcraft that he can gain only through a lifelong experience in the field. It is safe to say that 99 per cent. of the efficient game wardens of the country are hunters or fishermen. Their hobby has brought them into the work. The principal duties of the state police keep these men on the main highways. This is a mighty poor place to look for game-law violations.

Now comes the last state legislature of New York and amends the conservation law so that it is no longer necessary for a person in possession of a hunting license to display a button in a conspicuous place upon his clothing while hunting. It is a safe prediction that the unscrupulous gunner who delights in breaking the game law is pleased with this amendment.

Under the law which required the wearing of a button, mighty few men went afield without a license, for the main reason that everyone they passed knew that they were breaking the law if no button was in evidence. Those buttons were also a great help to the game protectors who could mingle with the sportsmen and from the numbers on the license buttons learn the names and addresses of the men violating the law without disclosing their own identity.

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Standard bred, pedigreed and registered Dark Silver Foxes. Will sell these choice foxes, either single or more pairs at reasonable prices. I will ranch them for you and give you all the increase. Small payment down, balance easy terms. Write for particulars.

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Prompt or future shipment.

Delivered prices will be quoted upon receipt of advice of number of rolls of each mesh-gauge and width wanted.

HAVERTSICK & COMPANY

125 South 5th. St. Philadelphia, Pa.

Fur Market

CANADIAN FUR AUCTION SALES COMPANY, Ltd.

May 1922, Sale Report

A great many of our shippers attended the sale. They were all pleased with the way their furs were handled and placed on display; the manner in which the sale was conducted, and the prices realized for their merchandise. In most cases we were able to sell their furs for more money than they had anticipated.

The following percentages are as compared with our February, 1922, sale; also summary of prices realized for the various furs, as follows:

Lynx—837 skins, unchanged\$16.00 to \$37.00
Lynx Cat—691 skins, advanced 20%. I and II. \$3.25 to \$6.25
Bear—325 skins, unchanged\$1.25 to \$15.00
Ermine—44,380 skins, declined 10%\$1.10 to \$1.75
Skunk—18,470 skins, advanced 10%.

Collection mostly Eastern.

I Black and Short\$4.00 to \$4.90

I and II Black and Short\$3.40 to \$4.20

I Long\$2.35 to \$2.65

I and II Long\$2.00 to \$2.25

I and II Broad\$1.10 to \$1.80

Mink—19,600 skins, declined 15%.

North Eastern\$6.00 to \$15.50

Minnesota—I and II Ex. Lg. and Lg. \$6.25 to \$8.00

Central States—

I Ex. Lg. and Lg.\$5.25 to \$6.00

I Med. and Small\$3.50 to \$4.00

Raccoon—17,394 skins, advanced 15%.

North Eastern\$4.00 to \$9.50

Beaver—12,422 skins, unchanged.

Eastern Canada\$11.00 to \$35.50

Western Canada—

I and II Ex. Lg. and Lg.\$26.25 to \$27.75

I and II Med. and Small\$14.00 to \$14.50

Otter—532 skins, unchanged.

Eastern Canada\$25.00 to \$39.50

Fisher—453 skins, declined 10%, according to color\$40.00 to \$162.00

Very few choice skins. Majority were large, late caught, and poor color.

Marten—4,336 skins, declined 30%.

The collection contained some attractive strings from Peace River and British Columbia.

British Columbia, according to color \$18.00 to \$82.00

Peace River and Alaska\$16.50 to \$50.00

Eastern Canada\$11.00 to \$37.00

Pacific Coast—I and II\$10.00 to \$17.00

CROSS FOX—357 skins, declined 10%\$20.00 to \$95.00

Grey Fox—1,427 skins, unchanged—I and II. \$1.45 to \$2.25

Red Fox—4,615 skins, declined 10%.

According to quality\$8.75 to \$20.00

White Fox—79 skins, unchanged—I and II. \$43.00 to \$50.50

Silver Fox—545 skins, declined 10%.

An average collection with very few choice skins.

¼ and ½ Blacks\$225.00 to \$380.00

Clear and Dark Silvers\$170.00 to \$255.00

Pale Silvers\$100.00 to \$170.00

Blacks\$40.00 to \$125.00

Low, Rubbed and Damaged sold according to their condition.

Northern Muskrats—95,370 skins, advanced 10%. An attractive offering.

Spring\$2.00 to \$3.00

Winter and Fall\$1.10 to \$2.00

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CLASSIFIED ADVERTISEMENTS

We make it our aim to see that all advertisements are from reliable persons. All complaints will be fully investigated. No classified advertisements of dealers of live animals will be accepted unless owner's name and address accompanies each ad. Advertisements will be inserted under this heading at the rate of eight cents per word each insertion. No advertising will be inserted for less than \$1.00 per month. Remittance to cover cost of advertisement must accompany order. Advertisements must be in our hands by the 20th of this month to insure insertion in next month's issue. Name, initials and address will be counted as words.

I HAVE SEVERAL PAIRS of Standard Bred Silvers for sale. Proven breeders. Also 1922 pups. Terms to suit. WM. RAMM FOX RANCH, Twin Lake, Mich., R. F. D. 2.

FOR SALE—Some good Silver Black Fox Pups. Guaranteed to breed true to color or money back. Enclose stamps for information. H. A. W. JACOBI, Fort Benton, Montana.

WANTED—An experienced fox salesman. One that is competent of organizing stock companies. H. WORKMAN, 29 Peck St., Muskegon, Michigan.

"NOTES FROM MY DIARY" printed in booklet form, after 8 years experience ranching foxes. It commences with November, mating the foxes, and follows the year right around. Contains many practical points that have never been put in print before. Price 25 cents. DR. RANDALL, Truro, N. S., Canada.

START YOUR FOX FARM ON MONTHLY PAYMENTS. Registered foxes for sale. LAZY "S" RANCH, Fort Benton, Montana.

WANTED—SILVER FOX. We pay \$500 each for skins and buy all you raise. Write for free information how to get started. DUFFUS SILVER FOX STORE, A21 West 30th Street, New York City.

WANTED—Two pair Live Beavers; one pair Live Fisher; one pair Live Otter; and your address if you are interested in securing Interior Alaska "Sterling Silver" Foxes of World's record pelt values. "Sterling Silvers" pay BIG DIVIDENDS. ALASKA SILVER FOX FARMS, Lake Placid, N. Y.

CLOSING OUT TWENTY PAIRS CROSS FOXES—Some produce Silvers in litters and are as valuable as blacks. Two hundred Silver Blacks to select from pelt value. Ten percent. down, balance as convenient. TODD BROS., Milltown, Maine.

RADIOL OINTMENT recommended for Mange, Eczema and all skin ailments. Postpaid \$1.00. RADIOL LABORATORY, 4198 Vine Street, Cincinnati, Ohio.

SILVER BLACK AND CROSS FOXES. Second to none. AUGUSTINE, Whitehall, Wisconsin.

SILVER BLACK FOXES—I am offering a few pair of pups from our registered stock at a very low figure. Also a few pair of dark crosses, proven breeders. Roy W. Johnson, North Berwick, Me.

DON'T THROW AWAY GOOD MONEY buying POOR foxes. Buy pure bred silvers, duty free, registered Canadian National Live Stock Records, Ottawa. E. M. MacDOUGALL, West Gore, N. S.

WHY NOT BECOME A FUR FARMER? Order your Silver Fox, Mink, and Skunk now for fall delivery. I ship on approval. Not one dissatisfied customer. Z. ALVIN GOFF, Lovells, Mich.

VICTORY FOXES—We own Victory Bob, score 94 11-12 (first prize, class two) and Victory Chief, 94 1-6 (third prize, class one) Muskegon Show, 1921. Fine lot of pups this year to choose from. Satisfaction guaranteed. Terms if desired. VOLMARI & HUGHES, Muskegon, Michigan.

WIRE NETTING—All grades. Lowest prices. List free. Successful Mink Raising book 25c. DAVIS FUR FARMS, St. Johnsbury, Vermont.

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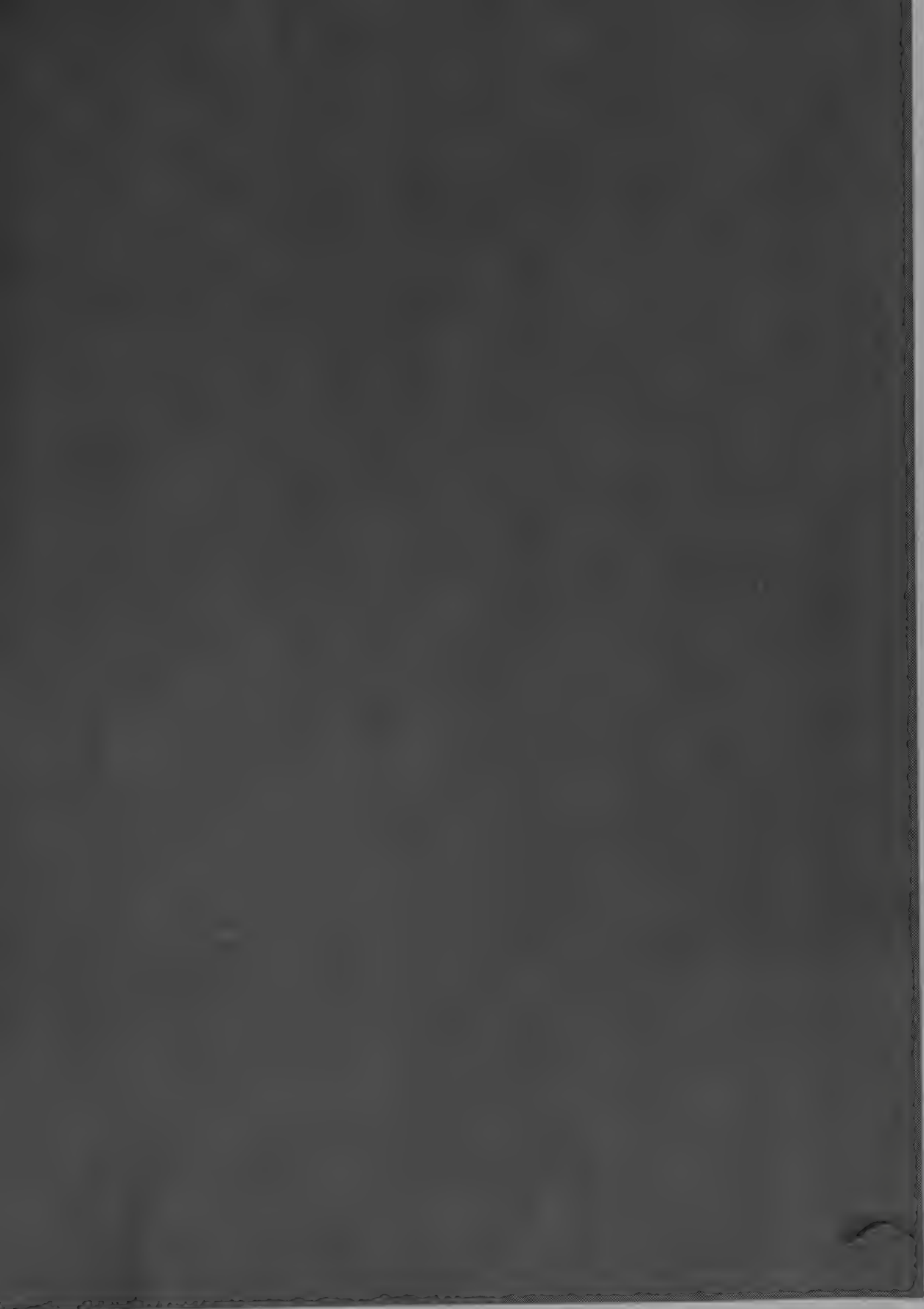
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